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THE UNIVERSITY OF ALBERTA

USE OF FINGERPAINT BY FOUR-YEAR-OLD CHILDREN

BY

© LAURIE J. HILLIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF EDUCATION

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EDMONTON, ALBERTA
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UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled Use of Fingerpaint by Four-Year-Old Children, submitted by Laurie J. Hillis.

Bernard Schwartz
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Date March 19, 1976

ABSTRACT

The major purpose of this study was to make a current examination of the use of fingerpaint by four-year-old children. What the children actually did during the performance of three tasks and the degree to which they seemed to become involved and gain satisfaction were the main foci of the study.

Twenty children, four years of age, from the city of Edmonton, Alberta, Canada were subjects in the study which was conducted in April, 1975. By means of descriptive analyses the variables of color choice, manipulative movements, time necessary, use of water, amount of prior experience, imagery and verbalization were all considered and evaluated. Three fingerpainting tasks of progressively increasing complexity and degrees of structure were presented to the children individually and their reactions carefully watched and analysed. The instrument, designed by the investigator to record data for evaluation was comprised of three components. A personal data sheet for each child contained pertinent background information and a transcription of the verbalization which was taped as the child performed the tasks. The Hillis Fingerpainting Observation Record Form was used to record the child's performance behavior during fingerpainting. This form enabled the researcher to categorize the use of color, time, types of manipulation and non-verbal behaviors. The Hillis Fingerpainting Evaluation Form was employed to assess the finished product using criteria of paint texture, surface area covered, resulting colors in evidence on the finished product and kinds of imagery. Data on these variables was collected during the child's performance of the three tasks primarily by means of the instrument but additional information was acquired through subsequent analyses of the paintings themselves and the tape-recorded verbalization of the subject.

Results indicated that the average time taken lessened from Task One to Task Three. Also the conditions imposed in Task Three led to a constricted use of the page and use of fewer colors and manipulative techniques. Throughout all three tasks there was a minimal amount of verbalization which suggested absorption in the activity. Non-verbal behaviors appeared to be an integral part of the total response to the fingerpainting experience. The data suggests that the experiences of manipulating the paint alone and enjoying its various properties are sufficient reasons for engaging in this activity.

Although limited by the findings of a small sample, the researcher concluded that the four-year-old children in this study tended to approach the tasks with enthusiasm and curiosity and only a minimal amount of initial hesitation. The children enjoyed the actual process of painting an great deal and were virtually unconcerned with a final product except during Task Three which required one. On the basis of the outcome of this study the investigator recommends that further research be done in the area of non-verbal response to this particular medium. The thinking, problem-solving experimentation is a natural, intrinsic satisfaction of working with fingerpaint. With process considerations in mind, more extended use of fingerpaint as a valid medium for artistic expression in educational programs should be encouraged.

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The writer wishes to extend special thanks to Dr. B. Schwartz for his support and guidance during the writing of this thesis. Thanks are also extended to Professor M. Grayson and Dr. D. Young, Committee Members.

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CHAPTER I

INTRODUCTION TO THE PROBLEM

Fingerpainting has enjoyed a long and eventful history. In various forms it had occasional use in the earliest cultures and has made its appearance repeatedly throughout the ages in different times and places.

It is speculated that primitive man may have used the method in his cave paintings. Imprints of hands and fingers are still in evidence in the wall frescoes of old Pompeii. There is reference to the art in the writings of Pliny the Greek. It surfaced in Munich in the fourteenth century although the actual technique differed slightly. Scott (1973:11) points out that the Tachist characteristics in the works of modern artists like the late Jackson Pollock bear striking resemblance to the surface quality and texture peculiar to fingerpainting.

Ruth Shaw, an American teaching in Rome in the late 1930's, developed the method of fingerpainting as we know it today. It was one of her many teaching techniques. In working with children from various cultural backgrounds, she found it a most satisfactory medium of expression not dependent on their verbalization. Psychologists became most interested in the process when she observed that it served to release inhibitions, helped overcome fears, and increased the self-confidence of children (Kadis 1950:404).

As the method became more popular, she lectured and traveled extensively until it came to be widely included in school programs, especially in America. Eventually Shaw developed a fingerpaint formula which was non-toxic, vibrant in color, and easily spread and manipulated. In New York in 1933, the Shaw Fingerpaint Studio patented the paint.

Because of increasing demand, they leased the formula to Binney and Smith who remain the leading manufacturers and distributors today.

There is substantial diversity of opinion concerning the value of fingerpainting as a worthwhile artistic endeavour. Certainly one of the most influential art educators of the twentieth century was Viktor Lowenfeld. After personally assessing its worth in Creative and Mental Growth (1947:19), the first edition of his classic text, he concluded that it had little to offer children under the ages of eight or nine years old, as they were developmentally not ready for it. He offered three reasons to support his point of view:

1) The young child, due to his undisciplined curiosity, is more concerned with the physical quality of the medium than with its potential for expression.

2) He is apt to be psychologically hampered by taboos, developed perhaps from his toilet-training experiences, against making a mess or getting his hands dirty.

3) The child is more naturally inclined to use a "tool" such as a crayon or a thick brush. Thus, in Lowenfeld's view, for the adult to encourage smearing with the hands was to actually contribute to a form of regression in the child's development.

In his writings, Lowenfeld often emphasized that for the young child the finished product is of little importance and that he is more rewarded by the process of engaging in the activity. It is therefore puzzling to the writer that Lowenfeld did not recognize any advantages of this nature in fingerpainting.

Another art educator, Mendelowitz (1963:44), leaves the use of fingerpainting up to the discretion of the supervising adult. As children vary so much in their personality, what may be enjoyable for some may prove to be a disturbing

experience for others.

Gaitskell (1970:175), a Canadian art educator, agrees with Lowenfeld that it is a medium lending itself readily to manipulation but claims that it is of "decidedly limited artistic value".

Kellogg (1958:3), who has worked for many years with preschool children in the Golden Gate Nursery Schools, is a most enthusiastic proponent of fingerpainting. She maintains it is an excellent medium for the young child who is not yet able to control a pencil or brush. It helps him to coordinate muscles and rhythmic body movement.

In deciding whether fingerpainting was appropriate for young children, Napoli, a psychologist, engaged in extensive research in fingerpainting as a technique for personality diagnosis. He claims that often children are presented with pencils too early. Parents are not always aware of the most appropriate activities for particular ages. He states that the "human being first comprehends representation through mass in movement in space and not as a point in movement which describes the extent of mass in space" (1951:396). Napoli thereby inplies that an activity such as fingerpainting is of value to the child.

Staples and Conley (1949:201) agree with Napoli that fingerpainting is a worthwhile pursuit for an age group where speech is not yet fully developed. From their own research they concluded that children under the age of five used fingerpainting mainly as an emotional outlet.

> In all creative activities there is a great emotional release for the child. This is even more true when he is engaged in fingerpainting for here there is no obstacle between the child and his medium of expression. He works directly

> with the material using any part of his hand or forearm.

Scott (1973:36), writing as an educator, claims that fingerpainting is the most spontaneous and personal activity that a young child is able to experience. It takes a definite place in the nursery as it allows the child to explore the feel of the paint directly with very few rules or restrictions (1973:24). The process and not the product should be emphasized. What happens to the child as a result of the experience is what really matters.

Two practical points put forth by Dunser, an art teacher (1957:140), are: 1) It is an economical medium because the child gets as much satisfaction and experience with one sheet of paper as he would get with dozens of sheets of drawing paper and crayons; and 2) The medium is so easily handled that the child who is afraid to try anything free and creative can work without inhibition or fear of failure.

Pritchard (1945:292) explains that the child seems to be in closer contact with this medium than any other picture-making activity. He becomes a part of his creation. He expresses great joy in manipulating the paint with his fingers, hands, and arms. If he does not like what he has made, a sweep of the hand makes a complete change and he can begin anew. If he happens to like what he has achieved, he is able to save it as a permanent record.

Whether or not fingerpainting makes any contribution artistically or developmentally to the young child is a subject of dissension, apparently. In view of the fact that it is used as an integral part of pre-school, day-care, and kindergarten programs, it is obvious that there are educators involved in the field of early childhood who do consider it of value and consequently include it in their programs.

The writer has chosen to examine the four-year-old child in particular and is therefore most interested in the growth and developmental trends characteristic of this particular age as it is described by art educators. It is generally agreed that the four-year-old enjoys large muscle movement, freedom of expression, spontaneity, and is gripped by a curiosity and desire for self knowledge. If given free reign, his imagination will flourish. By observing the child during play, one can see how the child reacts to his environment and how the changes he renders in it serve to stimulate further investigation. Montgomery (1968:2) feels that the

> thinking-feeling processes of open-ended working (or playing) are the central professional concerns of teachers...The teacher can observe individual beginnings of taking the materials, formulating working questions, making temporary assumptions, developing and changing plans, stating 'how it is' and so on.

Literature on the subject indicates that the fingerpaint medium allows the child to think qualitatively as he works and to react to the work in progress. He enjoys the power of first creating and then destroying if he so desires. Experiences like this make his thinking flexible and develop his self-confidence.

If one is to come to a decision as to whether the four-year-old child will enjoy using fingerpaint and become involved in the experience, the following questions must be considered. What are reasonable expectations of the four-year-old with art media in general, and fingerpainting in particular? Extensive observations have confirmed that pencils and crayons are familiar to the child of this age. The resulting works usually take the form of scribbling or preschematic representation (Lowenfeld,1947). It is often suggested that the pencil is gripped too firmly and acts as a block to free, spontaneous expression. The four-year-old child is not usually capable of

precise realism, nor interested in it. The young child feels comfortable using media with strong tactile characteristics like those found in clay, blocks, and paint, for example. Adult expectations are not as demanding then and open-ended solutions are possible. At the age of four, many children still enjoy kinesthetic sensations and motor release activities (Lowenfeld 1947:25), while others are entering the first stages of representation in their graphic development.

The writer feels that fingerpaint can offer the four-year-old many positive advantages:

The child needs no prior experience in order to enjoy the medium, although most would have had previous experience because they had smeared on steamy windows or in their food.
The child needs no tools other than hands, nor particular skill in order to use fingerpaint.
There is unlikely to be a fear of failure.
The medium provides tactile satisfaction.
Because a product is not emphasized, fingerpainting can provide opportunity for an enjoyable experience with its own intrinsic rewards.
If he wishes, he can do what he normally does with drawing and painting tools; ie: scribble or draw simple forms. His hand, however, is a far more direct tool. The child may incise into the paint in various ways exposing the white paper beneath.
The element of the unexpected stimulates children to experiment.
If more than one color is offered, the child can make discoveries for himself about color mixing.

Watching a child who is engrossed in an activity such as fingerpainting can be one of the best ways to judge his involvement with it. How long will he stay with it? Investigating? Playing? To what extent does his verbalization reveal his degree of involvement? His facial expressions and performance behaviors

can indicate whether or not he is enjoying his experience and can also reveal the process of qualitative symbolizing.

In summary, fingerpainting has had wide use in art education, early childhood curricula, arts and crafts and recreational programs, occupational therapy, personality diagnosis, and as a projective technique. The problem for this study arises mainly out of the varied points of view, often conflicting and contradictory, about the merits of fingerpainting as an experience for children as expressed in the literature by art educators, early childhood educators, psychiatrists, and psychologists. Moreover, there has been a minimum amount of research by art educators concerning children's responses to use of fingerpaint. Serious and scholarly study of the medium has not taken place since the early 1950's. There is a paucity of instruments designed specifically to record the ways in which the very young child appears to become involved in his art and the extent to which he enjoys using the different media.

Statement of the Problem

The purpose of this study is to observe and describe how four-year-old children use fingerpaint. By considering children's actual performance behaviors and verbalization, the writer wishes to investigate the appropriateness of fingerpainting as a worthwhile and enjoyable experience for four-year-old children.

The study sought to answer the following more specific questions:

1) Was there any initial hesitation or later reluctance to using the medium? If so, what appeared to be the cause?

2) What were the predominant performance behaviors in each of the three tasks and their significance as indicators of involvement and enjoyment of the experience?

3) How much time was taken to accomplish each task?

4) What was the amount and content of verbalization of the child during each of the three tasks?

5) What effects did the amount of structure inherent in the three tasks have on the resulting performance behaviors?

6) What unsolicited forms of graphic work or schema appeared during each of the three fingerpainting tasks?

7) Was the child able to reproduce a specific, recognizable image using the medium? If so, in what way?

8) According to sex, what was the initial color choice, the frequency of color choice, and the total amount of paint used by the child for each of the three tasks?

9) Did prior experience with the medium appear to affect the child's performance on each of the three tasks?

10) What use was made of water for dipping hands, cleaning hands, or wetting hands during fingerpainting?

11) Were there any definite trends in the performance of children which may be related to background factors as age of toilet-training, socio-economic status, chronological position in the family or socialization experiences?

Definition of Terms

For the purposes of this study the following terms are defined to mean:

fingerpaints: paints with a slippery, sticky, tactile quality which the subject places on a blank sheet of paper with his bare hands. In this way, he creates, and subsequently reacts to, his own stimulus (Napoli 1951:386).

fingerpainting: is generally known as that process in which a starch-like colored mixture is distributed and manipulated on wet,glazed paper by the fingers, hands, and arms using no tools (Pritchard 1945:291).

smearing: the most primitive of all the manipulative techniques using unskilled and undirected movements of the large muscles (Napoli 1951:395).

texture: the consistency of the paint itself which can be controlled either by adding water or by manipulating the paint.

verbalization: what the child was saying as he worked at each of the performance tasks and also before and after this performance; not a conversation with the investigator.

mud: is not used here to identify a traditional color, rather it is a "condition arrived at by mixing too many colors without any forethought, plan, or goal" (Napoli 1951:395). In other words, a dark, non-descript, grayed color.

Logical Structure for the Study

The logical structure for this study was based on the observation of the manipulative techniques used during the actual painting and the evaluative criteria used in assessing the finished product. Such criteria were: texture of paint, surface area covered, choice of color, the level of visual symbolization, the verbalization employed by the child while working and the non-verbal reactions to the medium and to the experience in general. These categories were derived from previously conducted studies in other subject areas using fingerpaint. The investigator has adapted and modified those categories which were most relevant to the study undertaken.

Two forms and a background information sheet comprised the instrument used by the writer in evaluating the results of the study. In other studies the factors under consideration varied according to the purpose for which the particular study was undertaken. Blum, Kellogg, Scott, and Napoli had identified predominant manipulative techniques and parts of the hand used as behaviors worthy of note. Both Blum and Napoli had investigated the use of color and color choice. Fifteen minute time units

for recording purposes had been used by both Blum and Napoli in their respective observation schedules. The actual formats of both the Hillis Fingerpainting Observation Record Form and the Hillis Fingerpainting Evaluation Form were closely patterned on both Napoli's and Blum's.

Scott (1973:36) recommended tape recording the child's verbalization and he encouraged children to talk freely both during and after painting. Consequently, all verbalization was recorded on sound tape in the present study. Scott also suggested a period of pure experimentation with the medium. This became the basis for Task One in the study.

Non-verbal behaviors peculiar to fingerpainting form a substantial core of the Hillis Fingerpainting Observation Record Form. Non-verbal behavior during the act of fingerpainting with various age groups had been described by Napoli (1951:402), Kadis (1950:412), and Alper et al (1955). Turner (1972:264) investigated non-verbal behaviors with pre-schoolers in another context but her findings are pertinent and used in the present study as well.

Basic Assumptions Maintained by the Investigator

The writer maintained the following assumptions in the conduct of this study:

The quality of art materials provided and the support and encouragement given by the supervising adult or teacher will significantly determine the outcome of the experience in terms of its value to the child and the quality of the finished painting. Language and observable non-verbal behaviors may be reliable indicators of the degree of involvement and enjoyment experienced by the child. The amount of time the child spends on the various tasks might be taken as an indicator of the extent of involvement on the part of the child. A more accurate reflection of the child's ability and involvement would be gained from long term study.

Limitations of the Study

The results of the study will only apply to the children who took part in it. Because of the small number of participants, the results will not be generalizable to the four-year-old population at large. Only one session, wherein the three tasks were performed, was conducted.

Significance of the Study

It is recognized that fingerpaint has been used in various ways ranging from use in arts and crafts programs, to use in personality diagnosis and therapy. A study of this nature may be able to give emphasis to the potential contribution that fingerpainting can make to the development of the young child. Since fingerpainting with the preschooler is a largely unexplored area, this study will add to the research in the domain of art education. The writer anticipates that the present findings concerning the advantages of the medium for the four-year-old child will encourage the more widespread use of fingerpaint than presently exists. It is hoped that the results will prove helpful to planning and development of curricula in the area of art education for young children.

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

This chapter presents a review of the literature and research most relevant to the study. The chapter is divided into three major sections: the first, the use of fingerpainting as a diagnostic and therapeutic technique for adults; the second, a review of literature investigating the use of fingerpaint with children; and the third, the concept of "process versus product" in art education and the controversy concerning this issue as set forth in the writings of art educators.

Use of Fingerpainting as a Diagnostic and Therapeutic Technique for Adults.

It is pertinent to this study to review some of the literature in the domain of psychological research since the actual procedures for the administration of this study and the method of recording the observed data were drawn from previous work in this area.

Napoli (1946, 1947, 1948, and 1951) realized the potential of the medium as an effective projective technique as it elicited spontaneous responses from his subjects. He worked with patients who had severe emotional and mental disorders. The medium posed no initial technical problems and the patients were able to relax and enjoy using the medium to such an extent that they were soon verbalizing their innermost worries and concerns.

Trends peculiar to certain disorders emerged. For example, Napoli found that schizophrenia is characterized by stratified layers of subject matter which is juxtaposed in stripe form on the picture plane whereas paranoia usually involves a figure central to the format. He felt there were clues in the

structuring and ordering of these paintings and he was able to refine his diagnosis procedures by taking such manifest behavioral tendencies into account (1946:205).

Napoli places emphasis on color choice and on the psychological and associative connotations of these selections. The type and amount of verbalization reveals information about the patient as well. He claims that projective techniques are essentially subjective, yet one should constantly strive toward organization and objectivity in evaluation as well as in method (1948:31). By considering performance observation, painting analytics and verbalization, Napoli attempts to remain objective. He devised his Fingerpainting Observation Form (1948:40) with the aim of standardizing the method of recording the various aspects of fingerpainting processes. He eventually designed a simpler form for use by the classroom teacher who might not have the necessary psychological background and interpretive experience.

Napoli stresses order during the process and encourages his subjects to clean up after themselves as part of the total painting experience. He strongly recommends using commercially prepared paper and paints in order to keep materials and conditions uniform. In his writings, he suggests a standard "kit" of equipment, an explanation of the technique of fingerpainting itself, and its administration as a projective technique in diagnosis. He presents his method of interpreting and recording systematic observations during the fingerpainting process. In addition to his overall evaluation, he considers the subject's orientation to the page (horizontal or vertical, 1951:403), and his placement of the first daub of paint on the page (1951:404). Color choice and texture of the paint are also evaluated. From his work the writer has adapted various categories for her own recording purposes such as paint texture,

standardized materials, choice of colors and manipulative techniques.

Kadis (1950) examined the merits of fingerpainting as a projective technique as it is a unique method of self-expression. He tried to evaluate its potential role in an integrated psychotherapeutic program (1950:405). Because the process has so little structure and precedental basis in cultural patterning, fingerpainting is an open-ended activity and can lead to free associations and spontaneous verbalizations. The psychological aim of eliminating any factors which inhibit the free flow of ideas, drive, emotions and impulses, is well accommodated using fingerpaint. Another advantage is that this medium is unhampered by linguistic factors (1950:406). He subjected his patients' work to both process (intrapainting", or what happens during) and sequence ("interpainting", or what happens in subsequent paintings) analyses. A series of paintings per subject is recommended.

Clinicians using this technique are able to agree that there is diagnostic significance to certain aspects of the subject's general behavior while he is fingerpainting. The attitudes or moods to be inferred form the behavior characteristics can, for convenience, be summarized under the terms "distance" and "involvement" (1950:410).

> Such aspects as posture, speed of movement, rate of breathing, spontaneous verbalization, reactions to wetness and the sensation of muddiness all form part of these kinds of observations. The subject could immediately establish a bodily relationship with the medium, not just with the fingers but with the entire body which became enlisted in the process. In facial gestures there are expressions of enthusiasm or anger. Hands, arms and back may join in rhythmical movement. Some smear paint on their bodies while others derive excessive

> enjoyment from bathing the hands in the water bucket. (1950:411)

Kadis (1950:412) took note of the reaction time in the form of a stall, halt, or hesitation in starting, pauses during the process, and the total time taken to complete the painting. These considerations gave rise to the formulation of Questions One and Three respectively in the present study. He feels these measures help to reveal the degree of the subject's acceptance of the task and his willingness to participate. Space utilization he defines as "expansion" or "restriction" (meaning the subject's attention to the axes of the page, 1950:413). In her study, the investigator examined the completed paintings in terms of the use of the page. Kadis' 4 classifications for this are: (1) frame left all around, (2) outer areas not completely covered, (3) spaces left here and there, and (4) completely covered.

The color analysis used by Kadis is similar to that used in projective techniques by other psychologists. He claims that "color choice will be made spontaneously or unconsciously but once confronted with the color on the sheet, the subject may react emotionally - a situation that in turn may serve as a stimulus for new color effects" (1950:414). The writer was interested in noting whether her subjects could identify the colors by name, which colors they would select, and the reactions to any color mixing that would occur.

Kadis suspected that certain colors have the power to evoke certain emotions but was unable to confirm this in his findings. He claims that color interpretation is subject to educational and age factors (1950:422).

Kadis claims that fingerpainting is enjoyable, performs the function of catharsis, is not dependent on language,

elicits strong emotion and spontaneous verbalization, and is a flexible technique. It is easy to move from therapy to diagnosis and vice versa (1950:429). According to him, the emphasis should be on what the subject experiences in the fingerpainting situation. From this therapeutic standpoint, the individual's subjective experience of his fingerpainting is of greater importance than what he produces (1950:426).

Spring (1936) describes a case study which points out the therapeutic value of fingerpainting in relation to anal impulses and stammering problems. The subject in question suffered from both verbal and anal constrictions. Spring observed that over a period of time the subject was helped back to normality and he became more self-confident and relaxed as he learned to work in fingerpaint.

Use of Fingerpaint with Children.

Art educators are not in agreement concerning the merits and suitability of fingerpaint as a medium for artistic expression, especially for the young child.

Guy Scott wrote Introducing Fingerpaint (1973) promoting the use of this natural and direct form of painting. Concerning the artistic experiences of the pre-schooler in particular he claims:

> Fingerpainting is an ideal method to start with. Children of this age will naturally make marks with their fingers when using paint and one can see examples of pictures at this stage which include fingermarks, thumbprints, and even hand prints as part of the design. (1973:16)

Scott says the child benefits from experiencing the material directly and he claims that tools actually hamper his freedom and impede his spontaneity. He claims that

getting dirty is also very much a part of a child's natural development and if it can occur in this type of condoned learning situation, he will gain a positive introduction to color and texture as well. If a child goes to school with only limited tactile experience, much creative work will be restricted through a dislike of handling certain materials (1973:20). Scott goes on to make excellent suggestions for the use of this art medium in experimental and inventive ways with older groups of students and he outlines the possibilities for its use in conjunction with other media to produce novel and exciting effects. He advocates lots of experimentation initially so ideas can be expressed freely. The adaptability and flexibility of fingerpaint as a medium of expression is stressed repeatedly by Scott.

Rhoda Kellogg, who is an experienced teacher of small children and an art educator, focused on the values and benefits of fingerpainting in her small book, The How of Fingerpainting, published in 1958. She claims that fingerpainting allows for coordinated use of all body muscles and expresses rhythms and movement basic to all art forms. Thus, according to Kellogg, fingerpainting helps to lay a foundation for other art work. With older children it has special value in releasing those who are inhibited with crayons and brushes (1958:4).

Although somewhat dated, Ruth Shaw's book is considered a classic in the literature on fingerpainting in both art education and psychological diagnosis. In it she extols the virtues of fingerpainting as a medium for artistic expression. Written in 1934, the book describes how Shaw initially became interested and intrigued with the medium and how she proceeded to invent the formula for the paint and to popularize its use.

Shaw claims that there is little that can be formally

taught in fingerpainting as each individual tends to develop a technique on his own and this is desirable. She sees the main advantage of such an experience as instilling an appreciation for other works of art, acquiring a perception of color, expressing and releasing inhibitions and articulating fears and secret obsessions, thereby dealing with emotional worries.

Victoria Betts published Exploring Fingerpaint in 1963. She records the history of the medium and the experiences with it by students, teachers, and artists. She encourages invention and experimentation with the medium using tools and mixed media and is particularly interested in mono-printing. She acknowledges the contributions the medium has made to many areas and claims that an experienced and well-trained teacher is necessary for a successful finger-painting experience. In order to teach fingerpainting she states that one "starts with the needs of the student, familiarity with the medium, and enthusiasm" and she cautions one not to approach the medium with "limited artistic vision" (1963:17). Betts was associated with Ruth Shaw since 1934 and has worked extensively with fingerpaint since then. She strongly recommends a flexible, experimental approach while working with this unique art form.

Many short articles have been written by art educators and art teachers concerning the numerous advantages of using fingerpaint. Some writers emphasize products, techniques, and unique effects or sometimes give step-by-step "how to" directions. Many proponents agree that finger-paint is worth using if for no other reason than enjoyment of a new experience. Boylston (1947), Dunser (1952,1955, and 1957), Lembach (1958), Hall (1948), and Grimm(1951, 1952, and 1958), to name just a few, have made contributions to the literature along these lines.

Lindstrom (1957:8) in describing the pre-school age says, "They enjoy the power of being the cause". A similar thought is expressed by Rhoda Kellogg's film, The Early Expressionists (1955), which says of pre-schoolers: "Children see and feel body rhythms...They watch the effects in progress while they work and react to them. With blocks they compose and smash down. It is the same with fingerpainting".

James Hymes, an educator, (1968:6) says it is a "mistake-free material" for the child under six as there are only "right" ways to use it and it satisfies their curious and probing minds.

Half of the excitement of using fingerpaint is due to the unplanned, the unexpected, and the element of surprise. Kellogg (1958:29) claims that the accidental effects that happen during fingerpainting may provide the most valuable learning experiences for the child. These accidental effects make the child think the medium has a kind of magic.

While speaking of watercolor, which he feels is too uncontrollable for the young child, Lowenfeld (1947:167) says that the medium often causes

> happy accidents which do not lend themselves to repetition. Happy, however, only for those who can make active use of them as a visual stimulus. Since the child in his painting is more concerned with expressing his own ideas than with visual stimuli, these happy accidents would turn into 'sad disappointments' because the child would not gain the feeling of mastery. Since we considered this feeling of mastery of prime importance for the psychological development of the child, we must not sacrifice these important gains to some happy incidents regardless of their beauty. An accident cannot be repeated.

This type of experience is true of fingerpainting as well and is one of its best assets in the view of the writer. Reacting to the work in progress and adapting to it are parts of the process for the visual stimuli of colors used or emerging images contribute to the child's further development of expression of ideas.

However, other art educators see it as a useless, if not actually harmful, experience for the younger child. Lowenfeld's opposition is the most strongly voiced. He claims that with fingerpaint, the young child can not properly experience the process as he is too concerned with the sticky consistency of the paint so he merely smears and smears and of course there is no product of note. He does concede, however, that "finger painting might be a useful stimulation for maladjusted children whose emotions need strong means of stimulation" (1949:19). Regarding fingerpainting with the older child (aged 9-11), Lowenfeld (1947:85) states that it "should not be done for its own sake but rather for applications to useful articles such as schedule cards, simple folders, or boxes." Referring to the younger child again, Lowenfeld states:

> Instead of improving control over their muscular activities, children can become involved in the pastelike consistency. We also have evidence from experiments and direct observation that the young child may regress into an earlier stage of behavior. (1947:106)

Another objection Lowenfeld raises to the use of fingerpaint is the child's supposed preference for tools.

> During certain stages in early infancy the child likes to play with dirt or even his own excrements. One of the great differences between men and animals is that men use tools and animals do not. The

> desire to use tools can be seen in early infancy, and should be encouraged. In fact, children using fingerpaints during these early stages are frequently again encouraged to play with dirt because the two materials are associated by similar physical consistency. (1947:19).

Lansing (1971) says that materials can be a source of stimulation for children. They invite the child to explore and handle and simply enjoy experiencing them. For this reason primarily he does assign some value to the experience of fingerpainting.

Lansing states:

> Fingerpainting is not very useful to the instructor if he wants to teach art to pre-primary children because youngsters under five years of age do not use the medium to its best advantage. They play with it as they would if they were exploring any gooey substance. The slippery texture of the material is so fascinating that they smear and resmear it without getting down to the business of making symbols. If they do make them they usually do so with the tip of a single finger which is not the way to use fingerpaint effectively.
> On the other hand, it is important to have a variety of activities in nursery school and kindergarten. Fingerpainting does no harm and may have certain beneficial effects outside the realm of art. Consequently it is recommended that fingerpainting be continued as an activity for preprimary children but it should not be considered as an experience that contributes very significantly to the development of artists.
> (1971:430)

Gaitskell (1970:174) discounts fingerpainting as a serious art medium but admits that it lends itself readily to manipulation and provides the most "fun" in the doing- but unfortunately to such an extent that children are no longer critical and appreciative of the results. It

can lead to a total physical involvement but is inappropriate for subject matter that requires handling of detail in the realistic rendering of images and therefore he feels it is of "questionable worth". This stance appears to put his emphasis on the final product as valuable.

Mendelowitz (1963) discusses various art activities that are, in his opinion, suitable for children under the age of six. Although he admits that the technique of fingerpainting affords the child direct control over the medium and offers variety in texture and tone, some children can not distinguish between using the paint and smearing in mud. Also he feels that the smeared background surface of the page might be too confusing for use in picture making and therefore the technique would best not be used with preschool children. Concerning fingerpaint in general he takes a summary stand and concludes in the end that it is up to the individual.

> There are contradictory opinions concerning the value of fingerpainting for this age group. Those who recommend it feel that having the fingers and hands make marks directly on the colored surfaces of the page provides the child with a valuable sense of direct control. They also point out that no other medium so easily produces such a wide variety of textures, shapes, and tone, nor so directly channels the small child's love of playing with messy mudlike material into a constructive activity. Those who disapprove of fingerpainting for this age claim that the child can scarcely distinguish between playing in the paint and playing in the mud. There is not the satisfaction of manipulating a tool and it is very difficult for the child to distinguish between the lines made by the fingers or hand and the background tone. The validity of both points of

> view indicates that the question should be decided by the responses of the individual child. If a child seems to respond to finger-painting it should be encouraged, if he is repelled by it or prefers to manipulate a pencil, crayons, or brush, then it might wisely be deferred to a later date. (1963:44)

The writer feels this point of view emphasizes the need to end up with a respectable product, or one that is acceptable to adult standards (eg: something suitable for hanging) which must then be objectively criticized. The writer disagrees with this emphasis on that kind of a result for every art experience of a child.

In speaking of fingerpainting directly, Shaw claims that "the vital thing is the creative expression, not the form that it happens to take"(1934:144). While these two concerns are not mutually exclusive, Shaw was distinguishing between the act of painting itself and having a finished painting.

Scott states that the freedom of the activity of fingerpainting should be emphasized, not the actual products (finished paintings, 1973:36). What happens to the child as a result of these experiences is what matters, not the actual work produced.

Use of Color

Staples and Conley (1949) investigated the use of color in young children's fingerpainting. They focused on the work of three and four-year-old children in particular and looked for consistency of color choice and resulting individuality in the paintings. They evaluated the color of the finished products in terms of hue, brightness and value. Since the children freely selected all colors with little or no preference, it was hard to determine

individuality in the work using the criterion of color choice alone.

> It became evident that the similarity was characterized by an interest in all colors rather than a distinct and continued preference for any one color. No significant color preferences were evident for either group of children...These young children were obviously experimenting and playing with the paint and had little control over the final effect. (1949:207)

Blum and Dragositz (1948) studied Grade One and Grade Six children and noted the first color choice and the frequency with which children chose particular colors. The investigator included this preference in her study as well.

Manipulation Techniques

Blum and Dragositz (1948) defined 6 types of manipulative movements used during their observations of Grade One and Grade Six children and the frequency of use of the various motions was tabulated.

Blum (1950) separately published her form for recording fingerpainting behavior. Among other things she noted fingerpainting movements and the parts of the hand and arm that were used.

O'Grady identified 5 main types of manipulative techniques (rubbing, drawing,scratching,patting, and picking).

Kellogg (1958) classifies twenty different manipulative movements. The writer found so many categories too unwieldy for the purposes of this study and reduced these to six movements most pertinent to the observations being made.

Developmental Levels

Art educators have formulated stages of artistic development and reasonable performance expectations for specific age groups. These observations are derived from working with children and watching their progress. Many writers have stated that children's graphic expression in all media follows a predictable developmental sequence.

Blum and Dragositz attempted to identify developmental levels of performance in fingerpainting by observing children at both the Grade One and Grade Six level. They looked for both sex and age group differences. In the present study the investigator briefly considered the sex category to see if any performance differences might be attributed to that factor.

Blum and Dragositz claim that until children have enough experience with smearing they will not keep colors sufficiently separated to get artistic effects by adult standards, nor will they proceed on to later, more advanced stages of communication through this medium. They feel the popularity of certain manipulative movements has developmental basis. The use of the fingers would demand greater skill than smearing with the palms flat. In their study they noticed that a single finger was often used in place of the whole hand in order to perform all varieties of manipulative movements.

> The index finger really leads in the manipulation of materials and becomes the finger that is greatest conditioned by the use of such graphic tools as crayon and pencil. The increased use of fingers with age, indicating ability for finer manipulation and control, comes with maturity. (1948:97)

O'Grady (1954) arranged the 5 manipulative techniques he identified into progressively more difficult levels of performance. He was comparing 2 groups of retarded children with a control group of normal children. The retarded children favored the smearing motion. Overall the performance findings of the retarded children compared favourably with those of the control group, perhaps due to the unfamiliarity of the medium. O'Grady tried to determine if fingerpainting could aid classroom teachers in diagnosing mental retardation and personality maladjustment. He stipulated developmental levels and implied that actual color preference and the amount of paint used indicated this to a degree. For example, he concluded that the use of the particular colors blue and yellow depended on developmental factors (1954:32).

Rhoda Kellogg (1958:10) claims that age is an important factor in the enjoyment of fingerpainting. Even though the taboo against messing and smearing may have been lifted for them, some children hesitate to use the medium. Perhaps they are uncertain about its unusual texture and about the lack of tools. Kellogg recognizes developmental levels or stages in fingerpainting performance and has defined particular behavioral characteristics peculiar to each stage. She has titled the 4 main stages: (1) Initial, (2) Smearing, (3) Purposeful, and (4) Pictorial.

> Stage Four is reached after three-and-a-half but may not appear until age four. Thus a child over the age of four could go through all four stages of fingerpainting in his first session but the beginning painter at any age usually likes to loiter in Stage Two. This is a valuable experience and should be permitted by the supervising adult especially for children

> who have not had fingerpainting in the preschool years. Smearing is something to be outlived before going on to pictures.
>
> (1958:13)

Guy Scott (1973) compares corresponding child development stages from preschool to adolescence in his book Introducing Fingerpaint. He feels that this medium can be adapted to suit varying stages of growth and he outlines innovative ways to use fingerpaint.

Texture is considered to vary with experience and age. The texture of paint used by the groups in O'Grady's study differed. Texture tended to be quite inadequate (lumpy) in the paintings of the retarded children. Between the two groups of retarded children there was very little difference in surface area covered as the retarded children tended to cover the whole page and enjoyed the smearing motion the most. O'Grady weighed the completed paintings in his effort to ascertain any differences in the amount of paint used. In the present study the writer tabulated the amount of paint used by counting the spoonfuls taken by each child.

Blum and Dragositz found that the area covered, the texture of the paint and the blending of the colors indicated improvement with age.

Symbolism

From her extensive work with children's drawings and brush paintings, Kellogg feels that their fingerpaintings have the same structural content as their drawings once they are well accustomed to using the medium.

Scott says that this medium bridges the gap between graphic art and painting as in fingerpainting the child draws with colored paint (1973:13).

Shaw states that the fingerpainting experience is a means of extending and enriching and relating meanings as well. The child gains control over mental images and concepts and his self-expression. By using the paints the child not only manipulates the properties of the paint but also the symbols expressed in the paint. Through this activity the child symbolizes, forms percepts and concepts as he does in his verbal language development. It is vital that one should allow the child much time and opportunity for this type of play.

In Blum and Dragositz's (1947) evaluation of the symbolism and representation , very little difference was found between the paintings done by the Grade One and Grade Six children, possibly due to inexperience with the medium. They noticed that while attempting representation, some subjects used the white of the paper as background and thereby gave more visual stability to the representation itself. The writer was interested in noting this trend in particular. It is curious, but understandable, that the child would use fingerpaint in the way of traditional painting (use the fingers in the way of a brush for applying the paint).

Mendelowitz (1963:45) says that with fingerpainting "there is not the satisfaction of manipulating a tool and it is very difficult for the child to distinguish between the lines made by the fingers or hand and the background area".

Allen points out that

> Fingerpainting has one striking influence upon children's art. It eradicates all finicky detail. The fingers will allow for no minute detail. What detail is introduced is detail only by comparison with the bolder sweeps. (1947:101)

Verbalization

Both Napoli and Scott feel that spontaneous verbalization is an integral part of the process and a dimension for consideration of the total experience. Scant attention is paid to verbalization by Blum and Dragositz. The only verbalization under study was the title which was requested of the child at the end of the performance.

Scott (1973:36) claims that children should be given a chance to explain and verbalize about their work.

Shaw (1934:85) cautions that probing psychologically lies outside the realm of the teacher and can drive the child back into himself. She says, "I have learned never to press a child for a title to a fingerpainting if he says there is none. We let it go at that. He may not be ready to admit what he has called forth from within himself. Her whole approach to fingerpainting and dealing with children embodies the philosophy of "teaching from within the child".

The writer taped all verbalization during the present study and subjected this to analysis.

Social Background Factors

Staples and Conley compared children from normal homes and from institutions to see if there were any notable differences in performance which were attributable to differing social backgrounds. Unequal prior experience with fingerpaint was minimized by instructing all subjects in the use of the medium before conducting their actual study. The resulting products were difficult to identify as belonging to one group or another.

Alper, Blane and Abrams (1955) correlated the age of toilet-training, socio-economic status and reaction to fingerpaints with four-year-old children as a portion of their research. They concluded that middle class children were much more anxious about performing the smearing task than were lower class children. Middle class children also demonstrated a lower tolerance for getting dirty, staying dirty and for accepting the paintings they produce while dirty. In the present study, the writer observed behaviors that seemed to indicate tolerance for the consistency of the medium.

Alper et al found that the area of the paper covered by middle class children tended to be constricted (1955:139). Over all they concluded that soiling and smearing behavior arouses more anxiety in middle class children than in lower class children (1955:141).

The investigator included some types of background, socio-economic information in the present study in order to select a varied sample and to note whether background factors appeared to affect performance behavior as well.

Working Atmosphere

Kellogg (1958) tells parents and teachers how best to supervise the fingerpainting so it becomes art expression as well as a form of child's play. She recognizes that the quality of art materials given and the degree of good adult supervision will determine the success of the venture at any age level but particularly with the preschooler (1958:55). She stressed that the teacher should preserve the spontaneity that is inherent in the process of fingerpainting if the process does not become over-directed by the supervising adult.

Shaw (1934(elaborated, case-study style on the benefits of using fingerpainting with children who have language barriers, emotional problems, or inhibitions of various kinds. Her recommendations for parents urged them to allow the child the freedom of experimentation and to develop a respect for his completed artistic work (1934:29). The role of the supervising adult is well defined by her. It involves encouragement, support, timely instruction of a skill when the need is felt by the child. The adult must also instill self-confidence, and self-respect in the child as well.

In his article "A Paradigm for Teaching in the Visual Arts", Eisner (1961) outlines the inverse relationship between opportunities for choice and imposed conditions in art and he observed the child's stifled reaction to a lot of direction given by the adult in charge.

Golomb's studies (1968, 1972, 1973, and 1974) show what limiting effects the imposition of structures can pose on the creative expression of children, regardless of what medium is used.

The working atmosphere, therefore, must be as relaxed and free as possible for children working in this medium to be spontaneous and uninhibited.

Concept of Process Versus Product

In art education much controversy exists regarding the relative importance of the "product" and the "process". Is the enjoyment of the activity sufficient reason for engaging in it? Must there always be a tangible product? What value does the process experience or sheer enjoyment afford the child? Art educators deliberate whether there

is intrinsic and educational value in purely manipulative and kinesthetic experiences for the young child and whether or not these aims are accommodated by using fingerpaint.

Lowenfeld (1947:89), for example, claims that the scribbling activity is of great value to the young child. The writer believes this activity is amply facilitated by using fingerpaint. Lowenfeld emphasizes the child's expression of representation of a non-visual nature such as "smoothness, roughness, or hurry-up lines being just as important as the visual impression of an object." The child should be given a chance to create lines and forms and to develop mastery of his coordination. At the scribbling age (2-4) the need to control kinesthetic motions should be uppermost. Lowenfeld (1947:91) says the child enjoys making marks both as motions and as a record of kinesthetic activity. He implies by these statements that the involvement in the process of scribbling is reason enough to condone it as an activity of value although there is no realistically defined picture in the end. The writer feels that this is what fingerpainting does best.

Jameson (1971:7) states that the actual by-products may indicate little or nothing of what happened during the activity, "It may give no clue to the experience that accrued to the child during the process of production". In the examination of the fingerpaintings done by the children in this study, the writer agrees that it is difficult to assess the value of the experience in terms of the finished paintings alone.

Lowenfeld continually emphasized the values of process over product. With the young child in particular he says the enjoyment of an activity is essentially from

the kinesthetic sensation and its mastery (1952:96). The writer can not see why Lowenfeld did not consider fingerpainting as one of the best media for this type of fulfillment.

Lansing (1971:70) deals with the issues of process and product. When is a person engaged in a process? How is growth to be ascertained? He claims there is nothing to react to as you work if there is no "product". Therefore the product is a vital part of the process. In criticizing the writings of Lowenfeld, Lansing states:

> First he had a tendency to speak of the process as a means of facilitating growth but he offered very few concrete examples of how it did so. Instead he seemed to concentrate upon the product and the evidence that it offered in support of the notion that growth had occurred during the process. (1971:68)

Montgomery (1968) states that a qualitative learning results from direct experience with media through the process of play. The thinking-feeling processes of open-ended working of playing are the central concerns of educators as he sees them. However, there must be a degree of individual autonomy in the activity. If not guarded, the process itself may become one more step in an efficient but impersonal routine. The teacher must know the esthetic satisfaction peculiar to the various media so she can share the child's pleasure in his own discoveries.

> The child who is used to finding for himself working possibilities his own size and then following up on them to see how they work and where they lead is beginning to build personal resources more useful than the pay-off of bestowed praises. The products of children's independent ventures can be very helpful to them. In fact, it is the objectified manageability of the child's recorded

> preferences which is the special value to him of working with visual art media. What he has done stays there before him while he decides, "What next?"

In working with visual art media Montgomery agrees with Lansing that the product must be there to react to as the child proceeds with the experience. Montgomery outlines four stages in the creative process: (1) exploratory play, (2) incubation, (3) insight, and (4) elaboration.

Golomb (1973) tried to ascertain what factors determined the representational process. She feels it varies as a function of the task set and the particular medium used. Although she did not use fingerpaint specifically, she describes differences in approaches to essentially the same task using a variety of media. She feels the role of the medium is most influential in the resolution of the problem given.

From the preceding discussion it would appear that art educators have taken divergent stances on whether affective benefits accrue to the young child as he explores and uses this particular medium. The experience and the thinking it produces maybe are sufficient and complete in themselves. More activities which emphasize enjoyment and involvement in the process alone with little importance attached to an end product that can be regarded and evaluated do offer the child a valuable learning experience and should be made available to him as a regular educational practice.

CHAPTER III

DESIGN AND PROCEDURES OF THE STUDY

This chapter describes the design of the study, the procedures used in the administration of the study, and the methods used in the analysis and evaluation of the data. The tasks and the rationale for their selection as well as other variables in the study are presented. The Pilot Study is also described.

The Pilot Study

A Pilot Study was conducted during the first week in April, 1975, in the home of the investigator in Edmonton. Four children aged four performed the three tasks for the investigator. From this preliminary study it was apparent that some sections of the instrument needed revision. It appeared that non-verbal behaviors were an important part of some childrens' total responses and these considerations would by bypassed by only regarding techniques of manipulating the paint and performance behavior. More variables such as "looks at investigator" and "rubs hands" were later included in the instrument. The study gave the researcher the opportunity to use the digital clock, the tape recorder, and the art supplies which would be used in the final study and to practice and refine her approach and the instructions given to the children. For example, the actual wording of the requests made in the three tasks themselves and the procedures for making the child feel at ease were improved. It was also decided that the investigator would remove the paint from the spoon for placement on the paper as Kellogg (1958:14) suggested. This procedure of removing paint from the spoon by the child himself proved to be too difficult and too

distracting for the child to accomplish on his own.

Sample Employed in the Study

The Sample of twenty children was made up of thirteen boys and seventeen girls from Edmonton. The children were 4 years of age and ranged from 4 years exactly to 4 years and 11 months old. They were solicited as volunteers in the study by means of a letter directed to parents which explained the intent of the study. Note was taken whether the children had limited or no prior experience with the medium as it might make a difference in the performance behavior exhibited by the child. Information on the extent of the child's experience was determined from talks with the child and his parents and/or teachers. No information on I.Q. was available for this age group.

The age at which toilet training was accomplished was determined by asking the child's mother. She also provided information concerning his socialization experiences and his chronological position in the family. The socio-economic status of the child's family was decided by rating the parent(s)' occupation on the Blishen Socio-Economic Index. These kinds of information had been collected in previous studies of fingerpainting in the event that trends in performance behavior might relate in some way to background factors.

Procedures for Collection of the Data

The Physical Setting and the Materials Used in the Study

Each child, formerly unknown to the investigator, was studied independently. The tape recorder was turned on from the time the child entered the room. The

first concern was to put the child at ease and establish a friendly rapport by engaging him in general conversation (Kellogg 1958:6). Each child was asked to name and identify the colors to be used (red, blue, green and yellow) and a record was kept of the ones correctly identified.

Napoli (1951:389) stated that "it had been found inadequate to use fingerpaint of the homemade variety when this medium is utilized in either diagnosis or psychotherapy". The researcher chose the commercial brand manufactured by the Crayola Company so the medium would be standardized throughout the study.

The table was a sturdy child's table with dimensions of 20 by 30 inches purchased especially for the study. Kellogg (1958:10) advocated that "standing is better as the child can see the whole paper in better perspective and it allows freer body movement". This was substantiated by Kadis (1950:408) and Scott (1973:25). The table therefore needed to be at a comfortable standing height for all children in the study. Its surface area was large enough to amply accommodate the fingerpaint paper (16½ by 19½) and a dish of water for wetting hands. Adjacent counter space was used for the paint itself, a tape recorder, digital clock, and a working space for the investigator to record her observations on the spot. Towels and a bucket of water were available for cleanup after the tasks were finished.

Eleven children performed the tasks at the home of the investigator and the other nine children were observed in a designated room in a city day-care center in which they were enrolled.

Performance Task One

For the first task to be performed by each child the researcher prepared the fingerpainting paper by immersing it in water and smoothing it out carefully on the dampened table. The child was asked to "use the materials" and instructed to "take as much time" as he liked but was asked to "tell the investigator when you have finished". Kellogg (1958:8) used the same instructions. Kadis (1950:410) had similarly told his subjects to "do anything you want to and tell me when you are finished". The subject was informed that he could have his choice of color and as much paint as he wanted by telling the researcher and she would then deposit it on the spot he indicated. It was explained that the water dish was available for dipping the hands or for adding more water to the working surface. After his sleeves were rolled up, or his shirt taken off and his midriff proctected by an apron, the child was ready to begin. Kellogg(1958:12) stated that an apron should always be worn as the young child cannot avoid bumping the edge of the table. The researcher took note of each starting and finishing time on the digital clock. It was recorded whether there was any delay in beginning each task. The researcher refrained from talking except to assist the child in procuring the desired color and depositing it on the paper. When the child had finished, his painting was removed and placed flat on newspapers for drying.

Performance Task Two

The second task involved a demonstration of techniques by the investigator. The child was requested to watch what was done and then attempt to imitate the procedure during his turn which followed. The investigator used both hands to smear the paint over

the entire surface of the page in preparation. Two tablespoons of paint were used. It was explained that it did not matter if paint got on the table or herself as it could easily be removed. She then demonstrated how to make marks using fingertips, fingernails, side of hand, fist, thumb, arm, and elbow. All marks were wiped out immediately. Then the child was specifically asked to do a painting of his own incorporating as many of the techniques as he could remember. He was again instructed that he could choose the colors and have as many as he needed and that he should tell the researcher when he was finished.

Performance Task Three

The third task was designed to see if the child would use the medium appropriately to perform a familiar task. The researcher used a pencil and paper to draw a man with the following attributes: face, eyes, nose, mouth, hair, hat, neck, shirt, hands, pants, and feet (see sketch in Appendix A). The child was requested to name the parts as they were being drawn. The drawing was then removed and a fresh sheet of fingerpainting paper was prepared. The child was specifically requested to reproduce the drawing to the best of his ability using the fingerpaint. This would test his ability remember details while solving the problem of how to perform the task. It was expected that the child would first prepare the surface by smearing and then use the hand techniques to incise the drawing. The investigator provided verbal support and encouragement where needed as Kellogg suggested (1958:14) since some children who were not used to drawing found this task difficult and lacked the confidence to "make a man". It was desirable to say as little as possible. No child was forced to do any of the three tasks.

Rationale for the Tasks Used

By using both structured and unstructured tasks in the study, the researcher felt that the child's natural way of working in the medium would be revealed and influenced. The child's initial reaction to the medium could best be obtained by simply presenting him with the medium and asking him to use it. A detailed demonstration at this point (Task One) might have limited his approach. Kadis (1950:409) in speaking about an initial trial demonstration said:

> There is a danger here, however, of destroying one of the major advantages of fingerpainting - its freedom from trained standards. Illustration by the examiner would most likely set a precedent that might lead to imitation by the subject. Furthermore, any performance that appears superior to his own may inhibit the subject's performance. As a result a feeling of discouragement may destroy an initial advantage.

Kellogg (1958:15) agreed. A period of free experimentation was recommended by both Boylston (1947:7) and Scott (1973: 40).

The second task was comprised of a demonstration using the medium in the accepted way. Napoli (1946:162) while applying fingerpainting primarily in an educational framework, suggested an initial demonstration by the examiner. In the present study the researcher showed the child how to prepare the working surface and how to execute the hand techniques. If a child was unsure of just how to proceed in Task One, it was anticipated that he would be able to use the medium more comfortably and effectively during Task Two. He was encouraged to duplicate the marks made by the researcher and was free to incorporate them into his own painting.

The third task was purposely designed to see if the child could remember the appropriate use of the medium in dealing with representation. The investigator felt this demand would reveal whether the child felt at ease using the medium. If a medium is unfamiliar to the child, he will tend to revert to more comfortable methods used with other media (Golomb 1973:247, and Blum and Dragositz 1948:101 support this belief.).

Arnheim in his preface to Golomb's (1974) text Young Children's Sculpture and Drawing says:

> The procedure of dictating to the child the parts of the body he or she is asked to represent on paper or in clay may be met with some hesitation by art educators who frown on any interference with the spontaneity of the child. Such hesitation is amply justified by the harmful effects of overly directive teaching methods and would seem to be unwarranted in the present case [referring to Golomb's study]. The experimenter prescribes what the child shall do, not how he shall do it, and the results are enlightening not only because of what they tell us about the potential range of the children's ability but also by what they refuse to do and cannot do. Their integrity proves to be quite robust".
> (Pg. xviii)

In her work with children's representation of the human figure, Golomb (1973:234) discovered that if the drawing task was too difficult, the child tended to substitute fantasy for planful action or attempt to explain away any discrepancies his drawing contained.

Golomb (1974:153) explained that:

> Drawing on dictation is designed to elicit the child's repertoire of forms and is also useful in assessing his developmental level. In the case of the scribbler who produces only nonrepresentational formations in the drawing task, dictation probes the child's

> readiness to invent graphic forms to match the verbal ones. In general, dictation tends to provoke the emergence of forms and shed light on the early representational usage of lines.

Task Three did not actually involve drawing on dictation but the implications of Golomb's findings might be relevant to those of the present study. She also concluded that the representation was also determined by the medium. Form develops within a given medium and according to the conditions imposed by the medium (1974:22).

Blum and Dragositz (1948:100 and 104) had found that some children had used the blank page as background and began directly with representation, omitting the preparatory step of covering the surface of the page with paint.

A familiar object, the drawing of a man, was selected as it was felt that a child of four years old would feel relatively comfortable trying to reproduce it. Kellogg (1969:192) and Kellogg and Dell (1967:75) claimed that the age of four to five was the "pictorial stage" and that drawings of people are the first clear signs of this stage. The "person" would spontaneously appear as early as the age of three and a half. Mendelowitz (1963:301) felt it was suitable subject matter for the child of this age.

The Instrument

Two forms, the Hillis Fingerpainting Observation Record Form and the Hillis Fingerpainting Evaluation Form constituted the main part of the instrument used in the study. Verbalization was transcribed from the tapes onto personal data sheets. The resulting three

paintings were pressed flat with a warm iron and retained for subsequent analyses.

Development and Description of the Instruments Used

The Hillis Fingerpainting Observation Record Form was designed by the researcher to identify and record the kinds of performance behavior commonly exhibited by the subject while working on each task. It served as a check-list for non-verbal behavioral characteristics and also recorded the time involved in the task, the colors selected for use, and the predominant manipulative techniques. Suitable categorization was effected by adapting and modifying the record forms used by both Napoli (1951:410) and Blum (1950:192) in their research. The complete instrument was further refined to suit the writer's purpose following the Pilot Study with four children. The designation "other" was included in various categories because some responses were anticipated which could not be classified within the existing frame-work of categories. The actual selection of criteria to be used for evaluation was based on reasonable expectations from this particular age group as set forth in the literature concerning art education and early childhood education. The tasks on which the observations were based were designed by the investigator as ranging from "completely unstructured" to "specifically defined". Conditions were imposed by the investigator. Elliot Eisner (1961:62) states that when the teacher selects a material for an individual or a class to use in solving a visual problem, this mere selection of that material becomes one of the imposed conditions. The investigator also chose the size of the paper and limited the number of colors to four. Time was left open.

For each painting, the Hillis Fingerpainting Evaluation Form was used as a checklist for categories which included paint texture, level of symbolization, surface area covered, apparent color of the finished product, total time taken, and the total amount of paint (spoonfuls) used.

Together with an information page, the two forms comprised the instrument used in the study, The cover sheet was used to record all pertinent background information concerning the subject: his birthdate and present age, his parent(s)'names and address (in order to send them a resumé of the completed study), the parent(s)' occupation (to help determine an index number using the Blishen Occupational Scale), the age of toilet training (to see if there was any relationship with the findings of Alper, Blane and Abrams' study (1966), his chronological position in the family, handedness (Napoli 1951: 394 and Erdt 1954:154 had both investigated the use of the left hand in fingerpainting.), prior experience with the medium, and whether the parent and/or teacher would describe the child as an introvert or extrovert.

The Hillis Fingerpainting Observation Record Form was designed by the investigator and recorded data according to seven categories. The investigator intended that they be mutually exclusive. They were:
(1) orientation to the page: (Napoli 1951:403 and 1947:96), and Blum and Dragositz (1948:98).
(2)use of color: six colors were listed on the forms; four of which were given to the child (red, blue, yellow, and green) and the other two were termed "mixed" and "mud" (Napoli 1947:114). This particular section of the record form was designed to enable the researcher to record the

first color selected (Staples and Conley 1949:207), the frequency with which all colors were selected (Staples and Conley 1949:206), and the total amount and kind selected (Blum and Dragositz 1948:104). The actual list of colors appearing on the form was abbreviated from the ones used by Napoli (1951:392), Staples and Conley (1949:202), and O'Grady (1954:29).

Staples and Conley (1949:211) concluded from their study of color selection that most three and four-year-olds used color with little or no preference. Kadis (1950:416) observed that the age range of four to ten used several colors, usually primary ones, and then employed them in striking combinations. The researcher decided to limit the colors to the four for convenience.

Some writers and researchers advocated starting with one color only (Gaitskell 1970:176, Allen 1946:101, Scott 1973:25, Erdt 1954:154, and Dunser 1955:18).

Concerning the amount of paint used, O'Grady (1954:37) reviewed the research of Napoli, Blum and Dragositz and concluded that the "amount of paint used seemed to have direct significance for such factors as submissiveness, agression, defiance of authority (as expressed in the wasteful use of paint) and attempts to hide details or retreat from life situations". O'Grady consequently weighed all his paintings in his research with feeble minded patients in his attempt to substantiate Napoli's theory.

(3) manipulation: In this category several descriptors were used: smearing, scribbling, scratching, obliteration, representational/symbolic, non-representational/abstract, and other. This selection was arrived at after considering those used in other studies and deciding upon the most

prevalent movements used by this four-year-old age group as evidenced during the Pilot Study.

Kellogg (1958:16) had ennumerated twenty different hand techniques, O'Grady (1954:32) had five, and Blum and Dragositz (1948:93) had six.

(4) part of hand used: eight sub-categories were included here: one hand, both hands, one finger, fingertips, thumb, knuckles, side of hand, and other. The list was selectively derived from the following investigators: Betts (1963:22), Staples and Conley (1948:209), Napoli (1951:404), Blum (1950:193), and Kellogg (1958:16). Napoli (1951:404) stated that the normal individual will usually utilize all parts of the hand and arm.

(5) performance behavior: according to Kadis (1950:410)

> The behavior before and during the actual fingerpainting, which has been found to be significant, includes the subject's posture, his speed of movement, his rate of breathing, and his spontaneous verbalization. Other factors unique to fingerpainting are reactions to wetness and the tactile sensation of muddiness.

He goes on to say that this is not an easy task to interpret but that the total configural pattern of behaviors can represent the general attitude and interest of the subject. He polarized attitudes into "distance" and "involvement". This concept is reflected in the researcher's categories of "use of one finger (section 4- part of hand used), "cleans hands" (section 5- performance behavior). and "positive (verbal) reaction to the medium" and negative (verbal) reaction to the medium" (section 6- verbalization).

The section entitled Performance Behavior listed ten

behavioral characteristics:

(a) wets the paper (Napoli 1946:194) by dipping the hands into water and dripping it onto the surface of the paper.

(b) cleans hands: either in water dish on the table or in the bucket on the floor while the painting is still in progress.

(c) looks at hands: stops to examine hands and their color, picks at gobs of paint on hands.

(d) rubs hands: squishes palms together to enjoy the feel of the slippery paint and to hear the sound of the paint being manipulated.

(e) symmetrical: two hands simultaneously making a mirror-image movement. Kellogg's (1958:20) category was "right-left duplication".

(f) body rhythm: a swaying ot the whole body as the child works. Kellogg (1958:10) said that the action "involves the back muscles, hands, and arms".

Kadis (1950:412) stated that:

> The subject may not merely paint with his fingers but his entire body movements may be enlisted in the process. Hands, arms, back may join in rhythmical movements.

(g) refuses to participate: demonstrates unwillingness to perform some or any part of the tasks.

(h) looks at researcher: usually in search of encouragement or an approving nod.

(i) other.

(6) verbalization: The verbalization of the child for the entire session was recorded and its meaning was determined and defined more precisely after transcribing the sound tapes onto the personal data sheets for each child.

Scott (1973:36) recommended taping the child's verbalization while he performed.

Napoli (1951:399) claimed that:

> Verbalization in fingerpainting is often difficult. It is hard to use one set of symbols (verbal) to describe another set of symbols (projections in fingerpainting). This difficulty is due to the fact that a vocabulary far beyond the ability of the individual is often demanded.

Napoli went on to state that expressions of pleasure, boastfulness, disgust, inadequacy, or the actual title were often given when the subject was washing up in the bucket and he claimed that this was a good time to record the verbalization. He often heard symbolism, fantasy, faction, absurdity, mythology, and associations at this time. Napoli (1948:39) also advocated recording all pertinent remarks made while the work was in progress. When possible, he gathered direct quotations and kept them with the record forms.

The categories of verbalization used in the instrument for the present study were as follows:
(a) silent: no verbalization while working.
(b) intermittent verbalization: commenting occasionally, generally about the task being performed.
(c) constant: indicating a possible detachment from the task if the verbal content was irrelevant (often the subject babbled on about other things). A stream of consciousness patter occurred as he worked which almost served to explain what he was trying to accomplish.
(d) positive reaction to the medium: words of comments of approval about the medium.
(e) negative reaction to the medium: words of comments expressing disapproval about the medium.
(f) asks for approval: questions seeking the support and encouragement of the researcher (Kellogg 1958:14).

(g) other.
(h) comments: This section enabled the researcher to record on-the-spot general observations as the work progressed.

The Hillis Fingerpainting Evaluation Form, designed by the investigator, consisted of categories of information which were determined by examining the finished product. The actual format was a checklist with space provided for additional comments. The subject's name, number, and task number were recorded at the top.

The information recorded was as follows:
(1) color apparent on the finished product: Kadis (1950:414) claimed that fingerpainting allows color to assume an extended emotional value. It is possible for the subject to choose his shades and blend them in such a manner to evoke a maximum of emotional reactions. He claimed that the actual process of choosing colors and using them can act as a stimulus for new colors and effects.

Napoli (1946:195) also took this category into consideration in his research. He tried to relate color preferences to psychological and personality traits.

In essence it was a judgmental decision on the part of the researcher as the colors were often mixed and blended. She limited the colors offered to red, blue, green, and yellow. With the additional descriptors of "mud" and "mixed" there was a total of six color categories. It was of interest to see if children kept the colors separate on the paper. Kellogg (1958:25) stated that children under the age of five normally did not.

(2) Total number of spoonfuls of paint was tabulated as well as the number of specific colors selected.

(3) The texture of the paint was described by analysing the finished product before it dried. Napoli (1948:38) outlined five textural descriptions. He found in his research that very wet texture was quite normal for very young children and spastics (1951:407). The five terms used to describe the texture of the finished product in this study were: satisfactory, lumpy and wet, lumpy and dry, smooth and too wet, and smooth and too dry.

(4) The total surface area covered was analyzed in the same way as the Blum and Dragositz study (1948:99). Five descriptors make up this section to include:
(a) confined to paper.
(b) extended off paper: This indicated a lack of inhibition or overagressiveness according to Kadis (1950:413).
(c) frame left all around: the actual whiteness of the paper. Kadis (1950:414) noted that some subjects in his research made a heavy black frame around their picture which was interpreted as a security device.
(d) outer areas not fully covered.
(e) spaces left here and there.

Kadis (1950:413) further stated that there are two major kinds of space deviation termed "expansion" and "restriction". These can reflect the personality characteristics of the subject.

(5) The level of symbolization was determined by observations during the process and the examination of the finished product. Many symbols were obliterated as the child worked with the medium. Kellogg (1958:13) classified finished products according to developmental stages named "smearing", "scribbling", "abstract", and "realism". The writer used these terms to classify any symbolism that occurred during each of the three fingerpainting tasks or

that was in evidence in the finished product.

(6) predominant manipulative techniques: These categories summarized the ones effected during the process and the final one in evidence on the finished painting for each of the three tasks.

(7) child's title or comments: The child was not asked for a title or comment but unsolicited titles or comments were recorded.

Dwelly (1951:157) felt that if a child was asked for a title and he had nothing in mind, he felt obliged to make up something to please the teacher. Scott (1973:54) said that a "free" verbalization allowed new characters and details to be described as they were included if the observer paid attention to what the child was saying as he was working.

(8) investigator's comments: Here a space was provided for any additional notes. Since the study was of the exploratory type, some of the behavior descriptions and performance actions may not have fit readily into other categories.

Procedure for the Analysis and Evaluation of Data

The analysis and evaluation of the child's performance and work was accomplished by recording the observations of behaviors and of the characteristics of the finger-paintings with the use of the instrument. A personal data sheet including both components of the instrument as described above,the tape recording of the verbalization (transcribed), and the finished paintings were kept for each child in the study. Each subject's total performance was reported separately in case-study form. Helmstadter (1970) claimed that the case-study approach was essential

when exploring new fields of investigation. The writer felt it was advantageous to follow this pattern with this study.

Numbers or letters were used to record the findings. Provision was made on the data sheets to record both quality and quantity of various responses. Spaces were left for other comments in the event that unusual or outstanding non-verbal actions not already accounted for could be recorded on the form by the investigator.

Procedure for the analysis of the data was as follows: The investigator used the Hillis Fingerpainting Observation Record Form to ascertain the kinds of behavior manifested by the child during his performance of the tasks. Recorded verbalization was interpreted and classified. The Hillis Fingerpainting Evaluation Form rated the finished products. The frequencies of responses were tallied and general overall summaries and comparisons were made. Conclusions of a specific nature were drawn concerning particular matters of interest. A comprehensive chart was compiled showing frequencies and qualities of responses. For some comparisons the subjects were ranked according to background variables they brought to the study which may or may not have influenced the quality of their overall performance. This information was initially instrumental in obtaining a stratified sample so as to include children with a range of backgrounds and experiences.

CHAPTER IV

ANALYSIS OF DATA, FINDINGS, DISCUSSION AND CONCLUSIONS

The analysis of data involved the frequency and quality of responses of the children pertaining to the kinds of performance behaviors exhibited and their verbalization during the fingerpainting tasks. The Hillis Fingerpainting Observation Record Form and the Hillis Fingerpainting Evaluation Form were used to identify the variables under study and to record data.

Chapter Four restates each question of the study, reports the findings and discusses and draws conclusions on each question. Some additional observations regarding fingerpainting performance are also made.

Question One:

Was there any initial hesitation or later reluctance to using the medium? If so, what appeared to be the cause?

Findings for Question One:

The investigator designated several indicators of reluctance and hesitation as "anxiety" behaviors. One such behavior was that of stalling before getting into the task. Most children began Task One right away. The children were simply asked to "use the materials" and no specific directions were given. This invitation caused most children to begin promptly. Reg, who had had no prior experience asked, "My hands?" and then started, and Ray, who seemed uncomfortably shy, needed a gentle reminder that he could begin anytime.

Task Two employed the invitation to "use the materials" but this was after the children had witnessed

the demonstration of fingerpainting techniques. After both the experience of Task One and the demonstration, a more specific response was expected from the child. All the children began the second task immediately.

Task Three was the most difficult and required a realistic drawing of a man. Consequently it was the most structured and directed by the investigator. Some children hesitated to begin. They appeared to lack the confidence to do the actual drawing required. The method of doing it - making the picture of the man using finger-paint - had not been prescribed so some children were unsure of how to proceed. Other children who appeared to have more confidence in their drawing ability solved the problem on their own with no indication of faltering or uncertainty. However, all children did attempt the task and performed it with varying degrees of success. Some needed a little extra encouragement to try and others changed the nature of the task entirely. As Golomb (1973:234) had noted, the child who is experiencing difficulty will substitute fantasy or attempt to explain any discrepancies away. For example, Linda said, "If I can't make a man, I'm going to make a rabbit". Ray announced, "This is going to be a car".

Another behavior manifested by the children which appeared to indicate anxiety was the act of looking questioningly at the researcher as if for approval. The observer nodded and smiled and that served to encourage and reassure them. Most of the children exhibited this behavior once or twice during the first task but as they worked through the tasks they appeared to gain familiarity with the medium and confidence in themselves. Bob, who was really unsure of himself, constantly checked

with the observer during all three tasks by giving her an inquiring look at intervals as he worked.

The third indicator of anxiety was the subject's behavior during the demonstration given at the beginning of Task Two. When the use of the arm and elbow in particular was demonstrated, a great many children expressed surprise and a concern for getting dirty. Some informed the researcher that she would have to "wash the paint off". There was general concern throughout the tasks for getting paint on the surface of the table but the researcher kept assuring them that it could easily be washed off.

A fourth indicator was verbal in the form of actual comments made about the paint during the process. June said, "It was really messy to do..." and expressed concern that she was "getting paint all over the table..." Bob kept examining his hands and rubbing them together saying they were "gucky". He appeared to find it most distasteful to have paint on his hands or person and so he kept wetting them constantly as he painted; cleaning them rather than merely wetting them. Bill tried using his elbow and immediately exclaimed that he "would have to wash that off". Ken constantly remarked on how "sticky" the paint was and explained how he was "squishing it" and "scrunching it".

Actually requesting help or saying that they could not do the task was a fifth indicator of hesitation or reluctance. This behavior was most apparent during Task Three which required the specific response of reproducing the figure of a man. Some children would have had difficulty doing this representational task using the more familiar medium of pencil and paper. All tried the task and most experienced a successful solution. Bill said, "I only know

how to make the head...Would you help me? Its kind of hard for me". But he proceeded on to do a successful job. John said, "I don't know how to make a whole man. I can't make a man when I'm painting". But he also was able to resolve the problem fairly well in the end.

Discussion of the Findings for Question One

Overall there was little hesitation in beginning the tasks and only a few of the twenty subjects appeared to be reluctant to use the medium. Generally the children seemed to be interested in experiencing the texture of the paint and some were concerned about winning the approval of the researcher. Some who were more involved and who exhibited fewer anxiety behaviors seemed intensely interested in experiencing the paint in their own private ways. Uncertainty as to how to proceed seemed to cause some of the hesitation but actual dislike for the consistency of the paint itself and the aversion to being dirty accounted for more of this as well. For instance, Joan during Task One used only one finger on one hand the entire time and attempted to keep this free of paint by picking gobs of it off her finger with her other fingers. It was her most dominant behavior for Task One. However, after the demonstration in Task Two, she felt more confident and used both hands and engaged in smearing. In this and other cases it was apparent that the child placed an emphasis on keeping the hands clean and consequently seemed uncomfortable using fingerpaint. Bob even required that the water in the large bucket be changed before his second cleanup as the water was "dirty".

The intentional lack of verbal direction in Task One caused some children to slyly check and seek guidance by looking at the observer to try and determine if they

were proceeding correctly. They appeared to be needing an approving nod which relieved this uncertainty.

Any lack of confidence in beginning Task Three was expressed by negative comments like "I can't" rather than actual requests for the observer to help. However most children performed the task with no apparent problem.

Conclusions for Question One

Overall, there was a negligible amount of hesitation and reluctance to using the medium and this tendency was exhibited by only a few children out of the total number of subjects observed. Unfamiliarity with the medium and the purposeful absence of prescriptive instructions in Task One caused three children to stall initially but they began the task soon after they had been reassured. Task Two posed no problems for any of the twenty children as all began working immediately with enthusiasm after the demonstration of techniques. In Task Three fifteen children began working promptly and five announced that they would have trouble doing it. Only one failed to give this third task an honest try and the other four who initially hesitated, made a good attempt to solve the problem.

Question Two

What were the predominant performance behaviors in each of the three tasks and their significance as indicators of involvement and enjoyment of the experience?

Findings for Question Two

The predominant performance behaviors for all subjects were those of smearing with the two hands, making marks with some part of the hand, usually finger-

tips and then obliterating them. Most of the time the children appeared to be reacting to the texture of the paint itself and appreciating the directness of the technique. Color mixing occurred whenever the subjects worked with more than one color. The children were not in control of this mixing but were aware of its occurrence and frequently commented on it.

No prescriptive directions were given for Task One but most children used both hands, fingertips to scribble and smeared with their palms flat.

Following the first task and immediately preceeding Task Two each child was given a standardized demonstration by the researcher wherein the following parts of the hand and arm were used: one hand, both hands, palm flat, nails to scratch, fingertips, thumb, knuckle, one finger to draw, fist, arm, elbow, side of hand, and the back of hand. The children were requested to remember the various ways the researcher had made the marks and to try and incorporate these techniques into their next painting. There was a noticeable increase in the number of the parts of hand used from Task One to Task Two for each child.

Except for four children who experimented with various marks and then went on to their own use of fingerpaint, the children simply tried out the techniques as demonstrated and then stopped working. The investigator had said, prior to their engaging in Task Two, "This time when you are working, try to remember some of the different ways to make marks and use these while you are working". However, most children made a variety of marks and concluded Task Two at that point. It was noted that four of the children used parts of the hand in ways additional to those demonstrated by the researcher. For example, hand presses, fist prints, poking and tapping

with one finger were used and one girl asked if she might use her foot.

In Task Three most children reverted to a more familiar mode of representation - that of drawing with a color. Since they lacked a pencil or brush, they used their fingers as a substitute.

Another performance behavior that helped to reveal the degree of involvement in the tasks was the amount of bodily movement. By this the investigator meant a swaying kind of rhythmical movement involving the back, leg, and arm muscles. Usually a concentrated smearing or rubbing motion would naturally precipitate total bodily movement of this kind.

In Task One, thirteen children evinced this characteristic of rhythmical swaying to a greater or lesser extent. This behavior was not manifested by the other seven children. In Task Two when the inhibitions had been lessened, there was an increase in the number of children who engaged in total bodily movement. No children demonstrated this characteristic at all in Task Three. The investigator attributed this finding to the fact that the task was so specifically defined and it anticipated a structured and traditional response.

It was felt that the use of the paper surface area might be an indication of whether or not the child was involved in the tasks. With this criterion in mind, the finished paintings were rated as follows: (1) constricted use of surface area, (2) surface adequately or completely covered and (3) paint extended off the surface of the page. Of the Task One paintings 8 were judged to be "constricted", 8 were "adequately covered" and 4 were "extended off the page". Of the Task Two paintings 4 were "constricted", 11

were "completely covered", and 5 were "extended off the page". Therefore, there was an increase in the extent to which the surface area was used from Task One to Task Two. Since Task Three required a drawing and the children were preoccupied with remembering the details to be included, most children used the page in a constricted way. The three children who did not perform the task successfully had the paint extending off the edge of the paper but they had apparently given up on the task itself and regressed into a smearing activity as in previous tasks.

A concern for what would eventually happen to the paintings was verbally expressed by six of the children. They were interested in knowing why the investigator would keep them.

Discussion of the Findings for Question Two

Smearing was the predominant manipulative movement used by the children during Task One and Task Two. The children seemed to derive an intrinsic satisfaction out of the smearing itself. Many were completely silent as they worked and kept watching what they were effecting so instantaneously. Connected with this seeming enjoyment of the direct results was the feel of the paint itself and the effects of the mixing of the colors.

Some children referred to the consistency of the paint in their comments. June said it was getting "bloppy" as she added more water and that it was getting "tough. I need a little more wet." John noted that "when its wet it goes faster". Ken kept exclaiming about how "sticky" it was. Bill said it "felt soft". Derek claimed it got all "soggy" and also that the paint "sounds because it has

water in it".

Most color mixtures resulted in bland hues but the children were aware that their mixing effected a change in color and would comment on it. Shane asked, "How come that happened?" Derek claimed that "it changed color. Look at that color". Bob said, "Hey its turning brown, turned purple, its turning dark." June said, "See what the color's doing? Its making a different kind of color...It changes color...See how the yellow's turning into green".

The researcher purposefully did not give instructions in Task One so she could observe how the children would use the paint on their own. Most children smeared with palms flat and scribbled with their fingertips.

In Task Two all children were then given the demonstration thereby potentially influencing the manipulative movements the children might use themselves. An increase in the number of manipulative movements used by the children was observed. The time taken by children to complete Task Two tended to be less as most children concentrated on reproducing the different kinds of marks and then stopped working. The fact that nearly all children increased the number of parts of hand used in Task Two has been interpreted by the investigator as meaning: they were curious to duplicate the marks, the fear or uncertainty of getting dirty had been removed, or they wanted to win the approval of the investigator.

It was intriguing to observe how few of these hand movements were utilized during Task Three. Generally the children used palms and fingertips on one hand primarily and neglected all the other techniques.

The investigator felt that complete bodily movement indicated a degree of involvement in the painting. These extra muscles only came into play when the child

was totally engrossed physically in the activity.

Kadis (1950:411) observed that some individuals immediately established a close bodily relationship with the painting situation. This indicated an involvement tendency.

Kadis states:

> In the facial gestures there are expressions of enthusiasm or anger. Hands, arm and back move rhythmically together.

Kadis noted that some smeared paint over themselves. (One child in the present study smeared both his arms up to his elbow) or they enjoyed excessive bathing in the water. The motivations underlying this "involvement behavior" might be diverse. They may represent strivings for pleasure or satisfaction particularly with reference to contact with water and muddiness, or they might be aggression or hostility.

O'Grady (1954) and Blum and Dragositz (1948) took note of the surface area covered claiming that it reflected the mental state of the individual being observed.

Staples and Conley (1949:201) stated that:

> Failure to cover the page indicates an inhibited or frightened individual, while inability to limit onesself to the page shows aggression and insufficient inhibition.

Kadis (1950:413) found that most individuals limited themselves to the whole paper and utilized the greater part of the entire sheet. Therefore any deviations became interpretively significant to him. He called the diverse tendencies "expansion" and "restriction" and his definition of these terms concurs with the deliberations of Blum and Dragostiz on the same matter.

The findings in this study showed an overall increase in surface area covered from Task One to Task Two. Familiarity with the medium seemed to encourage a more intensive use of the surface of the page. In Task Three nearly all children used the page in a constricted way. They reverted back to a drawing style but used a single finger instead of a drawing tool. They appeared to forget the fingerpainting procedure as demonstrated and were overly concerned with performing the representational task.

Only six children were interested in asking what would become of their work. One girl was so concerned that she could not have one that she insisted on doing a fourth painting to take home. Another boy who had expressed no verbal interest in the matter, separately invited two day care teachers into the room later to proudly show them his paintings. The investigator was not sure if this concern for the product arose out of a habit of always taking something home or from a genuine interest in the completed work.

Conclusions for Question Two

Rhythmical smearing and experimentation with making marks comprised most of the actual painting behavior of the children. The amount of accompanying bodily movement was construed by the investigator as an indication of the degree of involvement in the experiences. Page use and the surface area covered differed from task to task and appeared somewhat dependent on the way the child interpreted the directions given by the investigator. For example, when the representational Task Three was given, children treated the page surface far differently than in

Task One where no directions were given.

Less than one-half of the children asked about their paintings and this implied to the investigator that the children were content to enjoy the experience itself and not be overly concerned with a final product.

Question Three

How much time was taken to accomplish each task?

Findings for Question Three

The reading on the digital clock which showed both minutes and seconds was taken from the moment the investigator said: "You may start now", until the child announced that he was finished.

Task One had an overall average time duration of 10.1 minutes. It ranged from 2 minutes to 23.5 minutes (thereby spanning 21.5 minutes). The task was completely unstructured so a variety of reactions were possible and expected by the researcher. The child had been requested to "use the materials" and "begin" in Task One. Some children felt it was an invitation to experiment freely and spent a lot of time playing with the paint. No limit had been set on the amount of paint to be used. The children who used a lot of paint naturally used more time.

Task Two's demonstration by the researcher had focused attention on manipulative techniques and parts of the hand and arm to be used. The overall time average for this second task was 6.5 minutes with a range of 2 to 16 minutes (a span of 14 minutes).

Task Three which required the duplication of a representational drawing task took an average of 3.1 minutes. The time range for this task was from 1 minute to 7 minutes (a span of 6 minutes).

Discussion of the Findings for Question Three

Task One had the highest average time (10.1 minutes). The children received no direction and some of them were perhaps made anxious because of this. Consequently they took a short amount of time. Others felt the lack of structure gave them free opportunity to experiment. They tried out hand techniques and played with the paint. They felt no restriction on the amount of time available to perform Task One since no time limit was specified.

Task Two's demonstration focused on ways of making marks by using various parts of the hand and arm. Perhaps because of this initial emphasis, some children perceived that they must duplicate all the ways the researcher had used the paints. However, the actual verbal direction given was " Please use the materials again and try to remember some other ways to make marks while you are using the fingerpaints". In many cases the children merely imitated the demonstration including most or all of the techniques shown. Others used the paint in a personal way but incorporated the demonstrated techniques as they went along. Yet others systematically tried out all or most of the techniques first and then went on to use the paint in their own way - similar to their performance in Task One.

The average time taken for this second task was 6.5 (almost 4 minutes less than Task One), and the range was 2 to 16 minutes spanning 14 minutes (compared to Task One with a range of 21.5 minutes). Because of the focus on

particular ways of using the hands and arms, most subjects spent the majority of time trying out those techniques in Task Two, and stopped once they had attempted all of the techniques demonstrated.

In Task Three the researcher drew a picture of a man on paper using a pencil. She asked each child to name the parts as she drew them to help him remember them. Generally the children appeared to be concentrating on recalling the details to be included in this drawing. As a result they were less concerned with the particular method they would use to render the task in fingerpaint.

The average time was 3.1 minutes with a range of 1 to 7 minutes (a 6 minute span). This shorter average time seemed to be a result of the more imposed structure of this task although the method of completing the task was purposefully not specified. Once the last detail was included the researcher asked,"Would you like to add anything else?" while the child scrutinized his drawing.

Conclusions for Question Three

The average time for each task lessened as the subjects performed the three tasks. The time range became successively less with each of the three tasks. The lack of structured direction gave rise to an increase in performance time whereas the greater degree of structured direction was reflected in a decreased range of time needed to complete the task.

Question Four

What was the amount and content of verbalization used by the child during each of the three tasks?

Findings for Question Four

The researcher defined 4 categories to classify the verbalization:

(1) silent - except to ask for paint

(2) intermittent talking

(3) constant talking - but remarks confined to work being done.

(4) constant talking - about the painting, but mostly extraneous subject matter (such as :presents received on birthday, or ennumerating the members of the family).

The verbalization resulting from the study was categorized as follows:

	Category I Silent	Category II Intermittent	Category III Constant	Category IV Extraneous
Task I	12	4	1	3
Task II	9	9	0	2
Task III	8	10	1	1
For All Tasks	29	23	2	6

Table I - Verbal Classification for the Three Tasks

Discussion of the Findings for Question Four

From Task One to Task Two there was a noticeable increase in the amount of intermittent verbalization (Category 2). The two children classified as being in Category 4 in Task Two were also placed in Category 4 in Task One. In addition, one of these subjects was also classified as being in Category 4 in Task Three.

The highest overall category was number 1 which was "silent except for asking the researcher for paint". The researcher obliged these requests quickly in order not to interrupt their obvious concentration on the activity.

The categories tended to remain relatively constant per subject over the three tasks. For instance, Donald was rated 1, 1, and 1 respectively; Joan 1, 1, and 2; Mark 1, 2, and 2; and Ken 3, 2, and 2. Linda who appeared to enjoy having someone who would listen and who had trouble concentrating was rated a 4, 4, and 4 respectively. Most of her remarks were entirely unrelated to the work being performed.

Conclusions for Question Four

Most of the overall verbalization for the three tasks was evaluated as being in Categories 1 and 2. The researcher felt that most subjects, therefore, appeared to keep their minds on the task at hand. In Task One the larger number of subjects in Category 1 indicated perhaps an initial shyness. The overall concentration in Categories 1 and 2 is interpreted as indicating a complete absorption in the task and/or a general preference of the particular subjects in this study for working quietly.

Question Five

What effects did the amount of structure inherent in the three tasks have on the resulting performance behaviors?

Findings for Question Five

The amount of structure imposed by the investigator was intentionally increased from Task One to Task Three. The time taken to complete each task lessened successively per task. Hesitation lessened from Task One to Task Two but increased in Task Three perhaps due to the nature of the task itself. Use of water remained the same for Task One and Task Two but lessened for Task Three. The number of manipulative movements increased from Task One to Task Two but decreased for Task Three. The surface area utilized increased from Task One to Task Two and became constricted during Task Three.

Discussion of the Findings for Question Five

The investigator had purposefully designed three activities which differed in the degree of limitations and structure imposed on the child. Task One remained as a simple request to "use the materials". Consequently any number of open-ended responses were possible. The researcher was concerned with whether this request and the novelty of the medium would be sufficient motivation for the children to use the fingerpaint. She wanted to determine which performance behaviors would be displayed prior to her demonstration of techniques in the next task.

Task Two followed a comprehensive demonstration by the investigator using most parts of the hands and arms.

Technically the child was asked to "use the materials again and to try and remember some other ways to make marks". It was expected that the child would imitate some of the techniques as demonstrated but would incorporate them into his own personal way of working with the paint. Most children tried out all the techniques they could recall and then stopped working, thinking this was what the researcher wanted.

In Task Three the researcher made a more specific request of the child. A pencil detailed drawing of a man was to be copied using fingerpaint.

The amount of imposed structure then increased successively per task. Eisner (1961:6) defined "imposed conditions" as " those limits defined by the teacher within which the student must operate". Also "when the teacher selects a material for an individual or class to use in solving a visual problem, the mere selection of that material becomes one of the imposed conditions".

He goes on to say:

> As the number of imposed conditions increases, opportunities for choice decrease; thus an inverse relationship exists between these dimensions...In the teaching of art these conditions include specification of the materials or problems to be encountered, the length of time for which they will be used...All of the imposed conditions reduce the number of opportunities the student has for making his own choices. (1961:29,30)

Perhaps as a result of imposing structure in the tasks the following trends were noted:
The average time needed to complete each task decreased with additional structure imposed per task. The averages were:

Task One - 10.1 minutes
Task Two - 6.5 minutes
Task Three- 3.1 minutes

Reluctance and hesitation lessened from Task One to Task Two probably because the child gained self confidence as he worked and became more familiar with the medium. There was hesitation by some subjects at the beginning of Task Three but only because these children were dubious about their ability to make the drawing itself, not necessarily about using the fingerpaint. Others seemed to begin the task more quickly the more specifically the activity was defined.

The use of water remained the same essentially for both Task One and Task Two but decreased for the third task. Task Three was so well defined that it did not seem to leave room for varied responses.

More manipulative movements were displayed during Task Two following the demonstration than had occurred in Task One but very few were used in Task Three. It appeared as though the children forgot what medium they were using and concentrated on reproducing the details in the drawing of the man.

The surface area used increased from Task One to Task Two. The demonstration emphasized covering the whole page during preparation stages. The specific request in Task Three resulted in a constricted use of surface area overall. Even the children who did remember the proper technique of preparing the paper for fingerpainting only prepared a small area before incising their drawing into it.

Conclusions for Question Five

It appeared that either coincidentally or as a direct result that the amount of structure inherent in the task

affected such factors as: time needed, amount of paint used, apparent hesitation in beginning the tasks, use of water and utilization of the surface area of the page.

Question Six

What unsolicited forms of graphic work or schema appeared during each of the three fingerpainting tasks?

Findings for Question Six

In the evaluation form used in assessing the completed fingerpaintings, the following categories were used for classifying the symbolism observed:

(1) smearing
(2) abstract
(3) form of association: kinetic, eg: hurriedly made circular scribbles suggested "fox running away" in one case.
(4) structures (such as geometric patterns)
(5) pictorial realism

While watching the fingerpainting in progress, the observer noted and/or the children verbally described the various forms of symbolism which subsequently were obliterated as the child worked. Very few children used any form of symbolism, as defined in this study, except during Task Three when they were specifically asked to make a drawing.

Nine of the subjects did not try any form of symbolism at all until Task Three. In addition to these 9, 4 subjects could not perform Task Three and regressed into a smearing behavior.

More Category 3 (form of association - kinetic activity) types of symbolism were in evidence than any of

the others. For instance, Paul made a car and then traced its path with his fingers saying "Beep-beep". His fingers became the car itself. Ken's swirls reminded him of a "hole", "it was dark". The parallel lines he made with his nails suggested a "cage". Derek claimed that the red color and the motions of his hand suggested "bleeding". Category 4 (structured, geometric symmetry, pattern) was in evidence, for example, in John's work. He used both hands to make right-left duplications in the form of "seals", "sharks", and "whales" sequentially (his own verbalization). Mark who was left-handed spent considerable effort in printing his name backwards and also made a "sun".

Except as in Task Three, Category 5 (pictorial realism) was not common. June made a house with a door and roof but that was the only recognizable instance of realism.

Discussion of the Findings for Question Six

The fact that 14 of the children were able to make a recognizable representational image of a man in Task Three by using different methods implied that they were capable of pictorial realism. The investigator felt that the novelty of using fingerpaint may have been a factor in the overall absence of representational graphic work. This medium lends itself far better to expressive marks and swirls than to realism (Gaitskell 1970:176). Minute details are difficult to attain and the children seemed content to record the kinesthetic sweeps of the hand and the different rhythms of the various techniques. It was definitely an asset if the child talked while he worked as the investigator was able to make interpretations more accurately especially for Category 3. (These were overlooked otherwise or not

properly interpreted and therefore not included in the report.)

Conclusions for Question Six

Little unsolicited graphic work or schema appeared before it was specifically requested as part of the instructions given in Task Three. The small amount that was in evidence before this time was classed as "associations" or "structures" in the main. Not all of these observed symbolic forms remained on the completed painting but were noted as the work was in progress.

Question Seven

Was the child able to reproduce a specific recognizable image using the medium? If so, in what way?

Findings for Question Seven

In Task Three the child was asked to duplicate a pencil sketch of a man (see Appendix A) using fingerpaints. Fourteen of the 20 children produced a satisfactory drawing which included most of the details of the figure of a man. Three categories were used to describe the nature of these solutions. The number of children whose work was placed in these categories also appears as follows:

(1) correct - preparing the page by smearing the surface with paint and drawing into it (6 subjects).
(2) white background - using the finger as a brush charged with paint (8 subjects).
(3) other - not a successful solution , mostly smearing (6 subjects).

Discussion of the Findings for Question Seven

All of the children were able to name the parts of the drawing while the investigator made a sketch of a man with hair, eyes, nose, mouth, wearing a hat, shirt with buttons, pants, and shoes. Ten children initially expressed concern about doing the task but of these, 6 were able to make an acceptable picture (one which included the majority of details in the model pencil drawing). Some claimed they could not draw a man at all and others said they could not do it with paint. The actual method of painting was not specified intentionally, but it was assumed by the researcher that the child would follow the procedure as demonstrated in Task Two. (The painting paper was prepared by smearing it with paint and the drawing done by incising into it with one or more fingers.) As a result, two different methods were successfully utilized:

(1) correct - the paper surface was smeared with paint and the drawing was incised into it using parts of the hand (usually one finger). (6 subjects).
(2) white background - the child attempted to use his finger(s) as a brush and dipped it into a glob of paint and transferred it elsewhere on the paper surface. The background remained white as the child had not prepared the paper in the proper way as demonstrated in Task Two, (8 subjects). One child had begun in this fashion but gave up and smeared over his drawing and then realized that method 1 was a better way of dealing with the problem.

O'Grady (1954:34) found that in no case were any drawings produced using the white or uncovered portion as background for a figure or representation.

Blum and Dragositz (1948:100) however, had examples of this tendency and claimed it "indicates that in initial

experience with fingerpainting, children may tend to use earlier developed means of representation".

The third solution (3) was labelled "other" and was generally a failure to comply with directions given. The work of 6 children was placed into this category. They either changed the nature of the task by announcing they were making something else or regressed into a smearing behavior because they became noticeably frustrated.

Conclusions for Question Seven

Fourteen children were able to reproduce the drawing of a man in Task Three but only 6 did it in a manner appropriate to the medium being used. The actual procedure of using the fingerpaint was not specified for Task Three and the investigator was most interested in noting whether the child would utilize the proper method of working with fingerpaint. Most of the children were so preoccupied with remembering the details to be included that they used the fingerpaint in a way that best facilitated this drawing task. In fact, 8 subjects completely ignored the method they had used in both Task One and Task Two and so used the fingerpaint incorrectly. They did, however, complete a satisfactory solution to the problem itself as defined in Task Three and reproduced an acceptable image of a man.

Question Eight

According to sex, what was the initial color choice, the frequency of color choice, and the total amount of paint used by the child for each of the three tasks?

Findings for Question Eight

The complete information for each subject who participated in the study appears in the tables in Appendix B. For the purposes of an overall summary, the researcher will consider the aspect of color on a per task basis.

Initial color choice was determined by recording choices made during the observation of the tasks. This information is summarized in Table II. The frequency of color choice was tabulated by counting the number of spoonfuls of paint used by each child over the three tasks. The total amounts of paint used were as presented in Table III.

The average spoonfuls of paint per task were as follows:
Task I - 6.5 spoonfuls (range 1-16)
Task II- 3.4 spoonfuls (range 1-10)
Task III - 1.7 spoonfuls (range 1-6)
The thirteen boys in the study averaged 13.5 spoonfuls while the seven girls averaged 8 spoonfuls. The boys and girls were unequal in number so it would be inadvisable to generalize on the basis of these findings.

Discussion of the Findings for Question Eight

In actual fact it would appear that the boys in the present study tended to use more paint and favored red both as an initial choice and as most popular throughout the three tasks. The girls selected blue both as an initial color choice and as a preferred color throughout the tasks. However, the combined results yield the finding that blue was chosen first and preferred overall. Green and red were second initial choices almost equally, and yellow was the least popular initial color choice.

The frequency of color choice lessened as the child

	Task I			Task II			Task III			Total		
Color	T	B	G	T	B	G	T	B	G	T	B	G
Red	6	5	1	5	5	0	5	4	1	16	14	2
Blue	7	4	3	6	3	3	5	4	1	20	11	9
Green	6	4	2	5	3	2	6	4	2	17	11	6
Yellow	1	0	1	4	2	2	2	1	1	7	3	4
	20	13	7	20	13	7	20	13	7	60	39	21

T=Total
B=Boys
G=Girls

TABLE II: INITIAL COLOR CHOICE PER TASK BY SEX.

	Task I			Task II			Task III			Total		
Color	T	B	G	T	B	G	T	B	G	T	B	G
Red	36	29	7	18	16	2	8	7	1	62	52	10
Blue	36	25	11	22	15	7	10	6	4	68	46	22
Green	28	23	5	12	8	4	10	7	3	50	38	12
Yellow	28	21	7	16	13	3	6	4	2	50	38	12
	128	98	30	68	52	16	34	24	10	230	174	56

T= Total
B= Boys
G= Girls

TABLE III: FREQUENCY OF COLOR CHOICE AND THE TOTAL AMOUNT USED PER TASK BY SEX.

progressed through the tasks. Blue remained the overall favorite of the children in this study. Red was second preference and green and yellow tied for third choice.

The amount of paint used varied per task. Most spoonfuls were used during Task I which also had the greatest range. The least amount of paint used and the smallest range occurred in Task III. The thirteen boys in the study used an average of 13.5 spoonfuls of paint and the seven girls used 8 spoonfuls each on an average.

Staples and Conley (1949:211) found that the three and four-year-olds in their study freely used all the colors offered with little or no preference obvious. They felt there was no conclusive evidence for initial color selection. In speaking of older subjects, Napoli (1951:395) found that blue and then green was chosen by males and red and then yellow was chosen by females.

Blum and Dragositz (1947:90), using six colors, analyzed color in terms of first color chosen, the frequency with which each color was used during the painting period, and the total number of colors used. They decided that the choice made was attributed to developmental factors. They also reported Winch's (1909) study in which the girls clearly preferred blue then red, abd the boys chose red then blue. Blum and Dragositz reported that Reavis (1920) said that all children picked red and then blue.

Before Task One, the investigator had asked each child to identify the colors by name. Seventeen children were able to name all 4 colors, 2 children identified 2, and 1 child was only able to name one color correctly.

Conclusions for Question Eight

From Task One to Task Three, blue remained the most popular initial color choice, then green, red, and yellow in that order. Tabulations of color choices made over all of the

three tasks indicated that blue was the most popular followed by red with green and yellow considerably less popular. The total amount of paint lessened from Task One through to Task Three.

Question Nine

Did prior experience with the medium appear to affect the child's performance of each of the three tasks?

Findings for Question Nine

The researcher attempted to determine the amount of each child's prior experience with the medium by interviewing parents and/or teachers and the child himself. Prior experience with similar media like mud, steamy windows, or food on plates was not taken into consideration. Assuming that the information was complete and correct, the researcher determined the amount of prior experience by the following categories:

(1) none
(2) some
(3) a lot

As such, the categories when applied to the subjects resulted as follows:

Category 1 - 3 subjects
Category 2 - 15 subjects
Category 3 - 2 subjects

Discussion of the Findings for Question Nine

In Task One the subject's initial approach was noted carefully. Two of the three subjects who had had no prior experience hesitated to begin. Ray asked, "There aren't

any brushes?", and Reg asked, "My hands?". Most others appeared to be confident in this situation and began promptly.

Any differences potentially resulting from the amount of background experience of the subject were conceivably cancelled following their experience in Task One and the demonstration of techniques in Task Two. By the beginning of Task Two there were no noticeable differences in performance behavior. It was difficult to determine the amount of prior experience as the children were not entirely certain if they had used this medium before and the parents and teachers did not seem to know in every case.

Other than some initial hesitation and a small repertoire of hand movements (which also applied to subjects classified in Category 2) the difference was negligible. An attitude of confidence characterized both the subjects in Category 3. For example, June performed three techniques not demonstrated by the researcher (hand prints, fist prints, and poking and tapping with her finger) and asked if she might use her foot during Task Two.

Conclusions for Question Nine

There were no significant differences in performance behavior as related to the amount of prior experience. Any initial variation in performance appeared to have been cancelled following completion of Task Two. Since most of the subjects had had some form of fingerpainting experience or perhaps because they were willing to try, the investigator did not consider that prior experience had substantially influenced performance behavior in this study.

Question Ten

What use was made of water for dipping hands, cleaning hands, or wetting the paper during fingerpainting?

Findings for Question Ten

The researcher found that in most cases the children made some use of water to wet the hands or paper in order to facilitate the painting process. If the paint or paper surface became too dry the paint did not spread easily. Some children worked with stiff paint classed as "smooth and too dry" and apparently did not find this uncomfortable.

The researcher identified the amount of water used according to the following categories:

(1) none
(2) some
(3) a lot

Seven subjects made absolutely no use of water during any of the three tasks. The total amount of water used in Task One and Task Two was nearly the same. There was a considerable decrease in the amount used in Task Three. In fact, there were no Category 3 subjects at all for Task Three. See Appendix D.

Discussion of the Findings for Question Ten

Prior to Task One the researcher explained that the dish of water on the table was for wetting the hands and the bucket of water on the floor was to be used for cleanup purposes after each of the tasks. For Task One no demonstration had been given and the twenty children

were placed in categories for use of water as seen in the following table:

Category 1 - "none"	- 11 subjects
Category 2 - "some"	- 5 subjects
Category 3 - "a lot"	- 4 subjects

Table IV - Use of Water in Task One

After the demonstration in Task Two wherein the researcher used the water dish explaining why she needed more (to wet the hands and paper in order to make the paint spread more easily) the following classifications were noted:

Category 1 - "none"	- 12 subjects
Category 2 - "some"	- 4 subjects
Category 3 - "a lot"	- 4 subjects

Table V - Use of Water in Task Two

The results were not significantly different from those noted in Task One.

In Task Three which resulted in a different performance behavior on the part of the children, most subjects used no water at all:

Category 1 - "none"	- 16 subjects
Category 2 - "some"	- 4 subjects
Category 3 - "a lot"	- 0 subjects

Table VI -Use of Water in Task Three

Combining all three tasks, the results were as follows:

Category 1 - "none"	- 39 subjects
Category 2 - "some"	- 13 subjects
Category 3 - "a lot"	- 8 subjects

Table VII - Use of Water in All Three Tasks

One exception, Bob, who was rated 3, 3, and 1 over the three tasks respectively , appeared to be using the dish of water constantly as a means of cleaning his fingers. He asked that the bucket of water be changed for his cleanup after Task Two as it was "too dirty" from his previous cleanup. It appeared that he disliked the paint itself and was trying to keep his hands as clean as possible.

Conclusions for Question Ten

Overall there was a limited use of water although some children used it moderately to facilitate the painting process. Seven children made no use of water whatsoever throughout all three tasks.

Question Eleven

Were any definite trends of performance characteristics revealed by children who possessed background factors such as: age of toilet training, socio-economic status, chronological position in the family, or socialization experiences?

Findings for Question Eleven

Differing only slightly in degree or intensity of responses, the children were fairly uniformly consistent in their performance characteristics exhibited during the tasks. Some responses varied with respect to time taken, amount of paint used, and the amount and kind of verbalization. Although the researcher had gathered information about the variables mentioned in Question Eleven, she found it inappropriate, for various reasons, to draw conclusions concerning these background variables and the performance characteristics exhibited.

Discussion of the Findings for Question Eleven

Information on the age of toilet-training was obtained from the mother of the child in every case. Ages at which this was accomplished ranged from 1 year and 1 month to 3 years exactly. Bob, who bathed in the water excessively was toilet trained at the age of 2 years. Derek, who spent 33.5 minutes on Task One playing and smearing in very wet paint was toilet trained at 1 year and 6 months.

This particular factor was previously considered as a variable in the Alper, Blane and Abrams study (1955). Their resulting article entitled " Reactions of Middle and Lower Class Children to Finger Paints as a Function of Class Differences in Child Training Practices" concluded that the Lower Class children were freer and more relaxed in their overall fingerpainting performance.

In the present study 13 boys and 7 girls were observed. Since there were almost twice as many boys as girls it would be inaccurate to compare the two groups because of this disparity. However the investigator found it interesting to note the choices that were made by both sexes.

For socio-economic status the writer attempted to assign a rating to each subject's family using Pineo and Porter's Occupational Prestige Scores (1965) and the Blishen Occupational Class Scale (1958). It became immediately difficult as many subjects belonged to one-parent families with undefined sources of income. In two cases, the mothers were temporarily full-time students and this category is not included on an occupational scale. They were in the process of upgrading and thereby changing professions so it did not seem realistic to use either the former or projected occupation at this point in time. In some instances, both parents worked and in one case the mother would have been assigned a much higher index number than the father. The researcher felt this pursuit was futile and had little, if any, bearing on how the children were actually performing the tasks.

Information concerning the child's chronological position in the family and his socialization experiences was obtained as well as a judgment from the parent and/or teacher on whether the child was considered to be introverted or extraverted. This variable tended to be more directly relatable to the child's ease with the investigator than to performance behavior factors.

Conclusions for Question Eleven

Originally the information on age of toilet training, socio-economic status, chronological position in the family, and socialization experience was collected in the event that it might extend and add to the findings concerning fingerpainting performance. However, due to various difficulties encountered in assigning status ratings, and failures in extrapolating any clear emerging trends which might be related to these background factors, the researcher has hesitated to summarize these findings in a definitive way.

CHAPTER FIVE

SUMMARY OF THE STUDY

The Problem

The main problem of the study was to determine whether twenty four-year-old children enjoyed using fingerpaint and became involved in working with this medium. In addition, the study attempted to point out various performance behaviors of children during fingerpainting. Color choice was noted as well as the non-verbal responses displayed by the subjects in the study.

More specifically the study examined factors such as: the time taken to accomplish the tasks, graphic work that occurred in the paintings both unsolicited and requested, use made of water during the painting process, and indicators of hesitation and reluctance. The amount and content of verbalization was considered as a measure of this involvement.

The Procedure

Data for the study were collected in the month of April, 1975, from four-year-old subjects in the city of Edmonton, Alberta, Canada. There were four children in the Pilot Study and twenty children participated in the main study.

Three tasks were presented to the children. The first was simply an invitation to "use the materials" after the investigator had prepared the paper and made sure the children realized they could have as much paint and take as much time as they wanted. The investigator gave a demonstration of techniques at the beginning of Task Two. Following this she requested the subject to "use the materials again and to try and remember some other ways to make marks".

The investigator made a detailed sketch of a man with pencil and paper and requested that the child name the parts of the drawing. Without specifying the method, the investigator asked the child to reproduce the image of the man as drawn using fingerpaints.

In order to obtain the fullest response possible, the investigator used a comprehensive checklist while observing the tasks in progress, analyzed the finished paintings and recorded all verbalization on sound tape. The information was later transferred to personal data sheets (see Appendix A) for each subject.

It was speculated that prior experience with the medium, socio-economic status, sex, age of toilet training, and socialization experiences might possibly affect painting performance. This background information was obtained from the child, teacher and/or parent. The researcher drawing on previous studies, designed an instrument comprised of a personal data sheet, the Hillis Fingerpainting Observation Record Form and the Hillis Fingerpainting Evaluation Form. The frequency and quality of the various responses were tabulated and trends were noted.

More informal observations of the researcher on various aspects of the fingerpainting behavior were recorded on the spaces on the Instrument forms. The amount and kind of verbalization of the child while working was transcribed from the sound tape onto personal data sheets and later categorized.

Major Findings

There was a negligible amount of hesitation and reluctance to using the medium. This tendency was exhibited by only a few children out of the total number of subjects

observed. It was felt that the absence of prescriptive directions in Task One and the unfamiliarity of the finger-paint accounted for this in the main. After performing Task One and watching the demonstration preceeding Task Two, no children hesitated to begin Task Two. A request for realistic representation in Task Three caused five subjects to stall initially. Once encouraged, they attempted the third task promptly. One subject obtained non-verbal reassurance throughout the three tasks by stealing glances at the researcher as if for approval.

The predominant performance behaviors were smearing, making marks with fingertips, and then obliterating them. The direct and observable effect of their manipulation of the paint served as a stimulus for further work. Following the demonstration of techniques in Task Two most subjects added to their repertoire of fingerpainting movements temporarily but smearing, marking, and obliterating remained the most prevalent performance behaviors over all. For those children judged to be more involved in the activity, rhythmical bodily movement was in evidence. This swaying movement was considered a performance behavior as was the use of the paper surface which differed per task.

The time taken varied on a per task basis. The average number of minutes for Task One was 10.1; Task Two-6.5; and Task Three- 3.1. It appeared as though the lack of direction in Task One encouraged most subjects to freely experiment and play with the paint. Task Two's demonstration focused on techniques as performed by the investigator, and the subjects ceased experimenting forthwith and tried to duplicate the researcher. When confronted with the specific request for a representational image in Task Three, most subjects performed it to the best of their ability and then stopped working.

The verbalization of the subjects during fingerpainting was recorded and subsequently categorized. Overall the amount of verbalization was rated as either "silent" (Category I) or "intermittent talking" (Category II) implying to the researcher that the children either preferred to work quietly and/or were completely interested in using the fingerpaint.

The structure or amount of direction given in the three tasks increased from Task One through to Task Three. The effects that the imposition of more requests, limitations, and controls appeared to have on fingerpainting performance were as follows:

Hesitation and uncertainty manifested in the form of stalling and frustration lessened with the increase of more specific requests by the researcher.

The time taken to complete each task lessened successively per task (see Appendix D).

Use of water was equivalent for Task One and Task Two but was considerably less for Task Three (see Appendix D).

The amount of paint lessened successively from Task One to Task Three (see Table II on Page 79 and Appendix B).

The number of manipulative movements increased from Task One to Task Two (see Appendix D) probably as a result of watching the demonstration of techniques given by the researcher and wanting to try them out. The variety of manipulative movements decreased for Task Three, perhaps because the specific request for a detailed drawing was distracting.

The surface area of the page utilized by the child increased from Task One to Task Two (Appendix D) but became constricted for Task Three.

A minimal amount of unsolicited graphic work or schema was in evidence. That which did occur took the form of kinetic associations (movements which reminded the child of something), experimental or abstract doodlings which were subsequently

obliterated. Most subjects did not try any form of symbolism (as defined in this study) at all until the last task when they were specifically asked to make a drawing. Fourteen children performed Task Three successfully. The other six attempted it but lapsed into a smearing behavior when it proved to be too difficult for them. Two methods were used to accomplish this drawing task: (1) properly preparing the painting surface with smeared paint and incising into this work with the finger - 6 subjects, and (2) using the white paper as background and the fingers as a brush charged with paint - 8 subjects. As the procedure for doing this task was purposefully not specified, the investigator was interested to note whether the child would use the proper method of working with fingerpaint as demonstrated in Task Two.

Four colors (red, blue, green, and yellow) were used and the researcher recorded first choice, frequency of choice, and the total spoonfuls (amount) of paint used per task (see Appendix B). It was found that for the subjects in this study blue was the overall favourite initial choice and the most frequent choice through the tasks. Red was the third overall initial choice but was second choice for "most frequently used" total amount. Green was second in initial choice and tied with yellow exactly for overall use.

It was found that the extent of prior experience had little effect on whether the children became involved in the fingerpainting tasks, although some subjects displayed more self-confidence initially.

Seven children made no use of water for any of the three tasks. Only a limited use of water was made. In Task One and Task Two the amount used was the same with a considerable decrease in the amount used in Task Three.

Background factors such as socio-economic status, age of toilet-training, socialization experiences, and sex appeared to influence enjoyment and involvement in the process only minimally. The researcher experienced much difficulty in assigning a Blishen numerical rating to each subject due to the vagueness in the list of occupations itself and the information which could be obtained from the parents. To complicate this matter, many of the children in this study came from one-parent homes with undefined sources of income. The researcher found it inappropriate to apply this scale for use in this study. The age of toilet-training was determined for each child but no outstanding trends emerged that seemed to be related to this factor on the basis of such short observation.

Conclusions:

It was concluded from this study that four-year-old children enjoyed using fingerpaint and became involved in experimenting with the properties of the paint and manipulating its unique characteristics.

The fewer the restrictions (imposed structure) placed on its use in the tasks the longer and more fully the children used it and remained involved in it. Following the demonstration of fingerpainting techniques in Task Two, the children became noticeably more adventurous and proficient in the appropriate use of the medium.

When confronted with a representational drawing to observe how they would use fingerpaint in this instance, some children reverted to a more familiar mode of solving the problem, inappropriate to fingerpaint, but others were able to work comfortably through the medium to a successful solution.

The non-verbal behavior exhibited by the children in the study revealed certain apprehensions and inhibitions that some children experienced while working with the paint. In some instances excessive use of water, constantly looking at the researcher for approval, restricted use of hands and arms, constricted use of the paper surface, the small amount of paint used or time taken, hesitation in beginning all indicated a reluctance and dislike for the medium. These displayed indicators were peculiar to a minority of children in the study and tended to disappear as the children worked through the tasks.

Limitations of the Study

Although the investigator attempted to establish a comfortable rapport with the subjects, it was felt that some were inhibited because they were interacting with a stranger. A long-term study or a similar study with a familiar researcher might be more effective, particularly in obtaining verbal responses.

Although the effect of socio-economic status on performance behavior may have been worthy of inclusion, the researcher found that information on parent(s)' occupation was neither specific nor complete enough to be accurately applied to the Blishen scale. This instrument is a sociological measurement ranking occupations with regard to status and income and assigning a number for rank ordering.

Observation of non-verbal behaviors was limited since the researcher did not have assistance during the painting sessions and wished to be as unobtrusive as possible. Only those behaviors listed on the checklists and personal data sheets were considered and evaluated. The researcher did realize the need to supplement the child's verbal responses to fingerpainting with his non-verbal reactions.

In Chapter One it was presumed that an exploratory-descriptive study concerning children's behavior while using fingerpaint might provide some information concerning the appropriateness of this activity for this specific age group. Although the study identified certain performance behaviors, the researcher has realized that the observations made have not revealed the underlying motivations for the performance itself. In essence the study has ennumerated the variety of observable responses of children to fingerpainting rather than explaining why they occurred outside the context of the three tasks presented.

Implications for Art Education

Responses made by the children indicate that any initial hesitation and reluctance soon disappears. The unique tactile qualities of fingerpaint intrigue children and allow for originality and flexibility in responses and enjoyment of kinesthetic movement and experimentation. More experiences of this nature which have intrinsic value for the child are needed. Emphasis can then be placed on non-representational forms of art expression. The art educator can capitalize on the natural spontaneity of young children to help encourage a deeper appreciation of visual and tactile phenomena through sensory exploration that is natural for them.

Recommendations for Further Study

At the outset the researcher assumed that manipulative, tactile experiences are important for art education and that children can become accustomed to working with unfamiliar and unique art media.

Since this was an exploratory-descriptive study, there is a need for further research in which both the Hillis

Fingerpainting Observation Record Form and the Hillis Fingerpainting Evaluation Form could be utilized again to determine their appropriateness in other situations. For example, other age levels could be used. The Hillis Fingerpainting Observation Record Form could probably be modified to accommodate other media on a comparative basis.

Video taping would record the non-verbal responses more accurately than having to rely on a checklist format completely.

The Instrument might be used as a diagnostic device in identifying those children with inhibitions and apprehensions about fingerpaint and other sensory media. This distress can be overcome by sensitive guidance.

The researcher noticed a keen interest on the part of most children in working with fingerpaint. This trend is contradictory to some of the literature in art education, particularly the writings of Lowenfeld, Mendelowitz, and Gaitskell. These educators dismiss fingerpaint as an unsuitable medium and of little interest to the young child. It would be interesting to see if a variety of presentation approaches by the researcher would affect the degree of acceptance and enjoyment of fingerpaint by the children.

Artistic problem-solving using this medium was partially investigated and some interesting observations were made. This is certainly an area that lends itself to further research.

There is a need to study more closely the non-verbal behaviors exhibited by young children in working with fingerpaint for it appears that these responses form an integral part of the total response pattern. In particular

the investigator suggests that facial expressions, rhythmical bodily movements and working in silence with good concentration would reveal pertinent information with closer study.

Language aids thought processes and concept formation. There is a need for further consideration of the qualitative language of children in responding to art media and during problem-solving activities. Other ways of facilitating this verbal expression should be developed.

There is a need to plan and use units of instruction using less familiar media such as fingerpaint in depth with young children and this could constitute further research.

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APPENDIX A

THE INSTRUMENT

Contents:

Personal Data Sheet
The Hillis Fingerpainting Observation Record Form
The Hillis Fingerpainting Evaluation Form
Sketch of a Man Used in Task Three
Letter to Parents

PERSONAL DATA SHEET

Name: _____

Birthdate and Present Age: _____

Parents: _____

Address: _____

_____

Phone: _____

Occupation: _____

S.E.S. Ratio: _____

Handedness: _____

Age of Toilet Training: _____

Prior Experience: _____

_____

Socialization Experiences: _____

_____

Position in the Family: _____

_____

Subject Number: _____

Date Observed: _____

"Introvert"..."Extrovert" _____

Comments: _____

_____

_____

_____

_____

_____

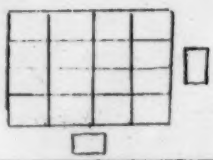
_____

_____

THE HILLIS FINGERPAINTING OBSERVATION RECORD FORM

GENERAL DATA

Subject # _____
Task # _____
Date _____
S.E.S. _____
Initial orientation to paper and placement of first daub of paint.....



Name _____
Age _____ Sex _____
Prior Experience with the medium _____

EVALUATIVE CRITERIA	TIME IN MINUTES 1	2	3	4	5	6	7	8	9	10	11	12	13	14
USE OF COLOR: red														
yellow														
blue														
green														
mixed														
mud														
Spoonfuls of paint														
USE OF PAINT: confined to paper														
extended off paper														
MANIPULATION: smearing														
scribbling														
abstract drawing														
symbolic drawing														
agressive scratching														
obliteration														
PART OF HAND USED: whole hand														
palm only														
fingertips														
one finger														
thumb														
side of hand														
knuckles														
other														
MISCELLANEOUS BEHAVIOR: wets paper														
cleans hands														
use of other instruments														
refuses to participate														
other														
VERBAL ANALYSIS: seeks approval or encouragement														
+ reaction to medium														
- reaction to medium														
constant verbalization														
intermittent talking														
verbal withdrawal														
incoherent														

SUBJECTIVE COMMENTARY:
Neatness (0-5) _____

THE HILLIS FINGERPAINTING PRODUCT EVALUATION FORM

GENERAL DATA

Subject #_____ Name_____
Task # _____ Total time spent_____
Subject satisfied with results (0-5) _____
Overall concentration and involvement (0-5) _____

PERCENTAGE OF COLOR APPARENT ON FINISHED PRODUCT
blue_____
red_____
green_____
yellow_____
mixed_____
mud_____

TOTAL SPOONFULS OF PAINT TAKEN
blue_____
red_____
green_____
yellow_____

TEXTURE
satisfactory_____
lumpy and dry_____
lumpy and wet_____
smooth, too dry_____
smooth, too wet_____

TOTAL SURFACE OF PAPER COVERED
frame all around_____
outer areas not completely covered_____
spaces left here and there_____
completely covered_____

LEVEL OF SYMBOLISM
smearing_____
abstract_____
form of association_____
structures_____
pictorial realism_____

Final predominant manipulative technique(s)_____

CHILD'S TITLE AND SUMMARY OF HIS COMMENTS ABOUT THE PICTURE:

INVESTIGATOR'S COMMENTS ABOUT THE PICTURE AND THE CHILD'S OVERALL PERFORMANCE:

SKETCH OF MAN FOR TASK THREE

Order Drawn:

face
eyes
nose
mouth
hair
hat
neck
shirt
buttons
fingers
pants
shoes

DEPARTMENT OF ELEMENTARY EDUCATION
FACULTY OF EDUCATION
PHONE (403) 432-4273

THE UNIVERSITY OF ALBERTA
EDMONTON, ALBERTA, CANADA
T6G 2G5

Dear Parents:

As an art teacher I am conducting a study concerning how four year old children use fingerpaint. Fingerpainting is widely used by teachers in pre-school and early childhood programs as a worthwhile experience for children but has not received serious study since the second world war.

Each child will be asked to make three fingerpaintings according to instructions I shall provide. The total time involved will be less than one hour. The child's fingerpaintings, his/her comments about the work and the physical movements used will be studied as part of this research. I shall provide the materials used.

Would you permit your child to participate in this experience? Please complete the information below and return it to me in the self-addressed, stamped envelope. If you would like additional information you may telephone me at 436-3317 or 432-3913 (business). A short summary of this study can be made available upon completion if you would like to have one.

Yours truly,

Laurie Hillis
Graduate Student in Elementary Education

Sponsored by
Bernard Schwartz
Associate Professor
Elementary Education

- -

Child's name _____ Birthdate _____

Sex _____ Phone Number _____ Parent's Name _____

APPENDIX B

COLOR

Contents:

Color Choice for Task One
Color Choice for Task Two
Color Choice for Task Three
Overall Color Choice for All Three Tasks
Identification of Colors Used in the Study

COLOR CHOICE FOR TASK ONE

Average 6.5 spoonfuls

	Name	1st Choice	Red	Blue	Green	Yellow	Total
1	Paul	Red	1	2	1	2	6
2	Joan	Blue	1	1	1	1	4
3	Ray	Red	3	2	2	1	8
4	Bob	Red	2	1	1	0	4
5	June	Blue	3	5	1	2	11
6	John	Blue	2	2	2	1	7
7	Tricia	Blue	0	1	0	0	1
8	Donald	Green	3	1	1	2	7
9	Aline	Green	1	1	1	1	4
10	Linda	Red	1	2	1	1	5
11	Ken	Blue	3	2	1	3	9
12	Bill	Red	3	1	1	1	6
13	Ronnie	Red	1	2	1	1	5
14	Mark	Green	4	3	6	3	16
15	Shane	Green	2	3	2	2	9
16	Karen	Yellow	0	0	0	1	1
17	Reg	Green	0	0	1	0	1
18	Dennis	Blue	1	2	1	1	5
19	Derek	Blue	5	4	3	4	16
20	Adele	Green	1	1	1	1	4
Totals:			37	36	28	28	129

Initial Choice

Red - 6
Blue - 7
Green - 6
Yellow - 1

COLOR CHOICE FOR TASK TWO

Average 3.4 spoonfuls

	Name	1st Choice	Red	Blue	Green	Yellow	Total
1	Paul	Green	1	0	2	2	5
2	Joan	Yellow	1	2	1	1	5
3	Ray	Red	3	3	1	3	10
4	Bob	Yellow	0	1	0	1	2
5	June	Green	1	0	1	1	3
6	John	Blue	1	2	1	1	5
7	Tricia	Yellow	0	0	0	1	1
8	Donald	Blue	0	2	0	0	2
9	Aline	Green	0	0	2	0	2
10	Linda	Blue	0	1	0	0	1
11	Ken	Red	1	1	0	0	2
12	Bill	Red	6	0	1	0	7
13	Ronnie	Yellow	0	0	0	2	2
14	Mark	Green	1	3	2	1	7
15	Shane	Green	1	1	1	2	5
16	Karen	Blue	0	2	0	0	2
17	Reg	Blue	0	1	0	0	1
18	Dennis	Red	1	1	0	1	3
19	Derek	Red	1	0	0	0	1
20	Adele	Blue	0	2	0	0	2
	TOTALS:		18	22	12	16	68

Initial Color Choice:

Red - 5 subjects

Blue - 6 subjects

Green - 5 subjects

Yellow - 4 subjects

COLOR CHOICE FOR TASK THREE

Average 1.7 spoonfuls

	Name	1st Choice	Red	Blue	Green	Yellow	Total
1	Paul	Blue	0	1	0	1	2
2	Joan	Blue	0	1	0	1	2
3	Ray	Red	1	1	0	0	2
4	Bob	Green	1	0	1	0	2
5	June	Yellow	0	0	0	1	1
6	John	Red	2	0	0	0	2
7	Tricia	Red	1	0	0	0	1
8	Donald	Red	1	0	0	0	1
9	Aline	Blue	0	1	0	0	1
10	Linda	Green	0	0	1	0	1
11	Ken	Yellow	0	0	0	1	1
12	Bill	Green	0	0	1	0	1
13	Ronnie	Red	1	0	0	0	1
14	Mark	Blue	0	2	0	0	2
15	Shane	Green	0	0	2	0	2
16	Karen	Green	0	0	2	0	2
17	Reg	Blue	0	1	0	0	1
18	Dennis	Green	0	0	1	0	1
19	Derek	Blue	1	1	2	2	6
20	Adele	Blue	0	2	0	0	2
	TOTALS:		8	10	10	6	34

Initial Color Choice:

Red - 5 subjects

Blue - 7 subjects

Green - 6 subjects

Yellow - 2 subjects

OVERALL COLOR CHOICE FOR ALL THREE TASKS

	Name	Red	Blue	Green	Yellow	Total
1	Paul	2	3	3	5	13
2	Joan	2	4	2	3	11
3	Ray	7	6	3	4	20
4	Bob	3	2	2	1	8
5	June	4	5	2	4	15
6	John	5	4	3	2	14
7	Tricia	1	1	0	1	3
8	Donald	4	3	1	2	10
9	Aline	1	2	3	1	7
10	Linda	1	3	2	1	7
11	Ken	4	3	1	4	12
12	Bill	9	1	3	1	14
13	Ronnie	1	2	0	3	8
14	Mark	5	8	8	4	25
15	Shane	3	4	5	4	16
16	Karen	0	2	2	1	5
17	Reg	0	2	0	0	3
18	Dennis	2	3	2	2	9
19	Derek	7	5	5	6	23
20	Adele	1	5	1	1	8
	TOTALS:	62	68	50	50	230

Overall Initial Color Choice for All Three Tasks:

Red - 16

Blue - 20

Green - 17

Yellow - 7

IDENTIFICATION OF COLORS USED IN THE STUDY

	Name	All 4?	Known	Not Known
1	Paul	No	Blue, Yellow	Red,Green
2	Joan	Yes		
3	Ray	Yes		
4	Bob	Yes		
5	June	Yes		
6	John	Yes		
7	Tricia	Yes		
8	Donald	Yes		
9	Aline	Yes		
10	Linda	Yes		
11	Ken	No	Blue	Red, Green, Yellow
12	Bill	Yes		
13	Ronnie	Yes		
14	Mark	Yes		
15	Shane	Yes		
16	Karen	Yes		
17	Reg	No	Red, Blue	Green, Yellow
18	Dennis	Yes		
19	Derek	Yes		
20	Adele	Yes		

APPENDIX C
RECIPES

The writer has collected the recipes for home-made finger-paint encountered in the literature and has gathered them together in this appendix. The writer emphasizes that she is not endorsing or recommending that these recipes be used, but merely presenting them as a collection of those in existence. It would be advisable to investigate toxidity of the ingredients before considering their use.

Golden Gate Nursery School Recipe .....(Kellogg 1958:9)
(Kellogg 1969:145)

2 cups flour
2 teaspoons salt
3 cups cold water
2 cups hot water
1¼ cups liquid food dye

Mix salt and flour. Pour in cold water and beat until smooth. Add hot water. Bring mixture to a boil. Continue til it clears. Beat it again until it is smooth. Let it cool and mix in dye. (Use a full ¼ cup of dye per 8 oz. cup of basic mix for smaller amounts.) To keep from spoiling, add ¼ teasp. of oil of cloves or 1 tablespoon of benzoate of soda to each batch.

Book Binding Paste .....(Kellogg 1958:9)

1 cup flour
1 cup cold water
3 cups of boiling water
Bring all to a boil, stirring constantly.
1 teasp. alum
coloring

Fingerpaintings will dry flat. No ironing required

Buttermilk Recipe .....(Kellogg 1958:9)

Wet paper with buttermilk and sprinkle with dry Tempera colors. Coloring by Tempera results in chalky surfaced paintings which do not fade.

Kellogg adds:

> Artistic merit is dependent on use of color and design quality. Strong colors should be given or else results will be muddy or too pastel. Food dyes do not come in many colors, but the primary colors combine to make more colors. Brown dye need never be bought.
>
> (1958:25)

Recipe # 1 .....(Hart 1957:59)

½ cup laundry starch
½ cup cold water
4 cups boiling water
liquid or dry Tempera (about 2 tablespoons to a pint)

Mix starch and cold water til smooth. Stir in boiling water quickly. Add coloring anytime. Will last three weeks.

Recipe # 2 .....(Hart 1957:59)

2-4 tablespoons of cornstarch
½ cup cold water
3 cups hot water
coloring (proportion as above)

Mix cornstarch and water til smooth. Add this to hot water in double boiler. Stir over slow heat til mixture thickens. Add color. Will last ten days.

Recipe # 3 .....(Hart 1957:59)

Any reliable commercial paste
cold water and coloring

Will last 4 days

Fingerpaint Recipe .....(Hall 1948:36)

2 quarts of boiling water
1 cup clothes starch
1 cup Lux soap flakes
½ cup talcum powder
oil of wintergreen

Dilute the starch with a cup of water. Then add remaining boiling water. Stir fast so no lumps form. Stir in soap flakes, then talcum and oil of wintergreen. Makes 5 pints. Add paint powder for coloring.

Mud Fingerpaint .....(Lucy Huff 1956:35)

Secure enough dirt or ground for the class and screen until all foreign particles have been removed. To each quart of sifted dirt add 2 cups of water gradually. To this add 1 cup of liquid starch (or use wheat paste instead). If too stiff add more water. Add Tempera if desired.

Fingerpaint Recipe .....(Creative Hands Film 1949)

1 cup of starch and water, stir.
5 cups of water, heat until clear.
1 cup soap flakes

Washable and it slips

Recipe .....(Greenberg 1970:23)

Cook 3 tablespoons of cornstarch in a pint of water until the consistency of pudding. Then mix in some Tempera and a few drops of glycerine to preserve it.

Fingerpaint Recipe .....(Harms 1972:99)

1¼ cups Aquatex non-toxic wheat paste
4 cups water
½ cup soap powder

Put water in a bowl. Add the wheat paste and beat til thick and smooth. Add soap powder and stir. Divide into 3 portions putting each in a bowl. 2-3 tablespoons of red, yellow, and blue.

Harms also suggests that bentonite in the right consistency is good; or simple laundry starch sprinkled with paint powder.

Recipe .....(Hoover 1961:41)

1 12 oz. box of Faultless starch
(or other cold water starch)
an equal quantity of soap flakes
(such as Ivory or Lux)
Powder paint for coloring

Mix starch and flakes. Slowly add water while stirring. Beat until mixture has the consistency of whipped potatoes. Yield 1½ pints.

Fingerpaint .....(Wild 1947:323)

Homemade fingerpaint can be made of cornstarch pudding colored with Tempera paint.

Fingerpaint .....(Harrison 1960:27)

(1) liquid starch sprinkled with dry Tempera powder
(2) ready mixed paste sprinkled with dry Tempera powder
(3) dry wall paper paste. Mix it up and add dry Tempera powder.

Recipe for Fingerpaint .....(Tilles 1946:292)

1 cup starch (Argo or Linit)
dissolve in 1 cup of cold water
add 3 cups of boiling water and
1 cup Ivory soap flakes

Stir and cook til smooth and thick. When cool, divide into 3 or 4 bowls. Mix thoroughly with powdered poster paints

in desired colors. Add one or two drops of oil of cloves (from drugstore) to each bowl. Pour into jars and keep covered when not in use.

Fingerpaint Recipe.....(Pritchard 1945:291)

A cooked mixture of cornstarch, water, and a few drops of oil of cloves and coloring matter as desired will result in a satisfactory medium, but the writer [Pritchard] has obtained the most satisfactory results with the commercial products.

Fingerpaint .....(Staples and Conley 1949:202)

Cooked starch mixture and powdered Tempera. This has advantages for small children as colors are clearly visible through glass containers. Paint is readily manipulative. Child can shake on the desired amount of color. Inexpensive. Easily prepared and stored.

Fingerpaint .....(Erdt 1954:154)

Starch and wheat paste. Shake on the color. Bottled laundry starch or soap flakes. Add dark color.

Recipe.....(Scott 1973:65)

If a polymer medium is mixed with the fingerpaint as a binder, paintings can be done on acetate sheets, plastic, and glass and can therefore be printed onto paper or thin card to be used for mobiles, Christmas decorations, and other large scale projects.

(1973:25) Teacher can mix powder color as pigment with starch or glue as the binder. Satisfactory for initial experiments, but tends to stain, is not as easily handled, and commercially prepared is not that expensive

anyway. Commercial paint is smooth in consistency, comes in a variety of colors, and has the additional advantages of being highly soluble, easily rinsed from the hands and non-toxic.

Fingerpaint .....(Burk 1959:32)

1 cup of cornstarch and 2 quarts of water made enough for two class periods of 30 students each. Some water was used to dissolve the starch, the rest added, stir. Boil for 2 minutes. After, add a few drops of oil of cloves.

Fingerpaint Recipe .....(Allen 1947:100)

Powder color and Gloy or flour paste.
You will not get absolute brilliance in your colors because the whiteness in the flour paste or the Gloy will tend to lighten the color. The lightening of the hues is not a drawback. Rather, it is of value, for the finished picture or design will be much more delicate in the final state. If you wish for flour paste, let it be fairly runny, not too thick and not too thin - the consistency of table mustard served on the average table.

Idea .....(Dunser 1952:12)

To try the process, use Bon Ami on a window.

Fingerpaint #1 ....(Mercer Island Preschool Association 1975:11)

2 cups warm water
1 cup Ivory flakes
food coloring

Whip the water and soap flakes together until smooth. Divide into several portions and add food coloring.

Fingerpaint #2
Laundry Starch and Soap Flakes .....(Mercer Island Preschool Association 1975:11)

1 cup Linit starch (or quick laundry starch)
1 cup cold water
4 cups boiling water
1 cup Ivory flakes
¼ cup talcum powder

Mix starch with cold water. Add boiling water and cook til clear stirring constantly. The mixture will not be as thick as the finished product. Add Ivory flakes and talcum powder (optional). Beat with egg beater until smooth or until desired consistency. Store in plastic containers in refridgerator.

Fingerpaint #3 .....(Mercer Island Preschool Association) 1975:11

½ cup cornstarch
1 quart cold water
¼ cup soap flakes
food coloring

Add cornstarch to cold water. Cook until clear, stirring. Add soap and food coloring and mix until smooth.

Fingerpaint #4.....(Mercer Island Preschool Association) 1975:11

Mix 1 cup dry starch with ½ cup water in a container that can take boiling water. Add 1½ cups boiling water and stir rapidly. Add ¼ cup powdered detergent and stir again until smooth.

Fingerpaint #5 ....(Mercer Island Preschool Association) 1975:11

A mixture of 1 cup laundry starch, 1 cup cold water, and 3 cups of soap flakes will provide a quick fingerpaint.

Fingerpaint #6 ....(Mercer Island Preschool Association)

Add a non-detergent liquid soap to liquid starch to

facilitate clean-up. Sprinkle Tempera on top of starch as used.

Fingerpaint #7...(Mercer Island Preschool Association)

Your child might like to fingerpaint with cold cream on a sheet of oil cloth. Or try Vaseline on a cookie sheet.

Fingerpaint .....(anonymous)

Take 2 cups flour and 5 cups water and cook until smooth. Add some salt and let it cool. Next comes the food coloring or powdered paint and the fingerpaint is ready.

Fingerpaint .....(anonymous)

Mix and cook:
1 cup sugar
1 cup flour
2 cups water
To prevent souring add a few drops of oil of cloves and mix.

Fingerpaint .....(Wankleman, Wigg, Wigg 1968:221)

1 cup liquid starch
6 cups water
½ cup soap chips
Dissolve the soap chips in the water until no lumps remain then mix well with the starch and the remaining water.

Mix wheat paste (wallpaper paste) into cold or lukewarm water. Stir until smooth. Pour into containers, one for each color and stir in the color pigment.

Small pieces of colored chalk ground fine and added to a paste of a smooth consistency makes an inexpensive finger paint.

---

2 quarts of boiling water and 12 tablespoons of starch dissolved in cold water first. Stir until thick. Pour

into containers, one for each color, and add the pigment in and a few drops of oil of cloves to prevent distressing odors. Keep in a cool place.

Starch and Soap Recipe .....(Kellogg 1958:9)

2 quarts boiling water
½ cup laundry starch dissloved in
1 cup cold water

Turn off heat and stir. Add poster paint for color or sprinkle on after it is placed on the paper.

APPENDIX D

Contents:

Time Taken for the Three Tasks
Surface Area of the Page Covered
Manipulative Movements
Use of Water
Verbalization
Bodily Movement

Subject's Name	Task I Ave. 10.125	Rating	Task II Ave. 6.45	Rating	Task III Ave. 3.125	Rating	Combined Average	Overall Rating
1 Paul	6.5	2	8.0	2	1.5	1	16.0	2
2 Joan	11.0	3	5.0	1	3.0	1	19.0	2
3 Ray	8.0	2	11.0	3	3.0	1	22.0	3
4 Bob	16.5	4	16.0	4	7.0	2	39.5	4
5 June	14.0	3	12.0	3	3.0	1	29.0	3
6 John	13.0	3	10.0	2	4.5	1	27.5	3
7 Tricia	17.0	4	5.0	1	1.0	1	23.0	3
8 Donald	9.0	2	8.0	2	3.0	1	20.0	2
9 Aline	6.0	2	7.0	2	2.0	1	15.0	2
10 Linda	4.0	1	3.5	1	2.0	1	9.5	1
11 Ken	14.0	3	2.0	1	1.0	1	17.0	2
12 Bill	4.0	1	6.0	2	3.0	1	13.0	2
13 Ronnie	6.0	2	3.0	1	2.0	1	11.0	2
14 Mark	14.0	3	6.0	2	3.5	1	23.5	3
15 Shane	9.0	2	8.5	2	2.0	1	19.5	2
16 Karen	2.0	1	3.0	1	3.0	1	8.0	1
17 Reg	2.0	1	3.0	1	4.0	1	9.0	1
18 Dennis	9.0	2	7.0	2	3.0	1	19.0	2
19 Derek	23.5	4	3.0	1	7.0	2	33.5	4
20 Adele	14.0	3	3.0	1	4.0	1	21.0	3

Rating Key: 1-(1- 5 minutes)
2-(6-10 minutes)
3-(11-15 minutes)
4-(16+ minutes)

TIME

Overall Rating Key: 1-(1-10 minutes)
2-(11-20 minutes)
3-(21-30 minutes)
4-(31+ minutes)

PERCENTAGE OF SURFACE AREA COVERED

	Name	Task I	Task II	Task III	Method of Representation
1	Paul	2	2	1	A
2	Joan	1	2	1	B
3	Ray	3	3	3	C
4	Bob	3	3	1	A
5	June	3	2	1	A
6	John	2	3	1	A
7	Tricia	1	2	1	B
8	Donald	2	2	1	B
9	Aline	1	2	1	C
10	Linda	2	2	1	B
11	Ken	2	1	1	C
12	Bill	2	3	1	A
13	Ronnie	1	2	1	B
14	Mark	2	2	1	B
15	Shane	1	2	2	C
16	Karen	1	1	1	B...A
17	Reg	3	3	3	C
18	Dennis	1	1	1	C
19	Derek	1	1	1	B
20	Adele	2	2	1	B

Key: (1) constricted use of page
(2) paper covered
(3) extended off paper

Mode of representation:
(A) correct - paper smeared with paint and marks incised into it with part of hand
(B) white background - finger used as a brush
(C) other

MANIPULATIVE MOVEMENTS FOR TASK ONE AND TASK TWO

	one hand	both hands	palms flat	nails	fingertips	thumb	knuckles	one finger	fist	arm	elbow	side of hand	back of hand	other	-	=
1 Paul	- =	- =	- =	=	-		-	- =			=		=		6	7
2 Joan	- =	=	=	=	=		=	-		=			=		2	8
3 Ray	- =	- =	- =	=	=	=									3	6
4 Bob	- =	- =	- =	=	=	=		- =	=						4	8
5 June	- =	- =	- =		- =			=	=	=	=		=	*a	4	9
6 John	- =	- =	- =	=	- =	=		-		=	=		=		6	9
7 Tricia	- =		- =	=	-	=	=	-	=	=			=	*b	6	8
8 Donald	- =	- =	- =	=	=	=	=	-	=	=		=	=		4	11
9 Aline	- =		- =	=	=	=	=	=			=				2	8
10 Linda	- =	=	- =				=		=		=				2	6
11 Ken	- =	- =	- =	-					=	=	=				4	7
12 Bill	- =	- =	- =	=		=		=	=	=					3	8
13 Ronnie	- =	=	=	=	-	=	=		=		=				3	8
14 Mark	- =	- =	- =	- =			=	- =		=			=		5	10
15 Shane	- =	- =	=	=	=	=	=			=	*c	=		*d	2	10
16 Karen	- =	- =	=					=							3	4
17 Reg	- =	- =	=	=		=				=	=				3	7
18 Dennis	- =	=	=	=	-	=		-	=				=		4	9
19 Derek	- =	- =	=	=	=	=	=	-	=	=	=				4	10
20 Adele	- =	- =	=	=	-	=				=	=				4	7

*a hand presses, asked to use foot, poked finger, hand print, fist print.

*b hand prints *c much elbow use. *d both elbows, tapping with fingers, hand prints, but no smearing.

USE OF WATER

	Name	Task One	Task Two	Task Three
1	Paul	1	1	1
2	Joan	2	1	1
3	Ray	1	1	2
4	Bob	3	3	1
5	June	1	3	1
6	John	2	1	1
7	Tricia	1	1	1
8	Donald	1	1	1
9	Aline	1	1	1
10	Linda	1	3	1
11	Ken	2	1	1
12	Bill	2	3	1
13	Ronnie	1	1	1
14	Mark	2	1	1
15	Shane	3	2	2
16	Karen	1	1	1
17	Reg	1	1	1
18	Dennis	3	2	1
19	Derek	3	2	2
20	Adele	1	2	2

Category	Task One	Task Two	Task Three	Overall
(1) none	11	12	16	39
(2) some	5	4	4	13
(3) lots	4	4	0	8

	Name	Task One	Task Two	Task Three
1	Paul	4	2	3
2	Joan	1	1	2
3	Ray	1	1	2
4	Bob	1	2	2
5	June	4	4	2
6	John	2	2	2
7	Tricia	1	1	1
8	Donald	1	1	1
9	Aline	1	1	1
10	Linda	4	4	4
11	Ken	3	2	2
12	Bill	2	2	2
13	Ronnie	1	2	1
14	Mark	1	2	2
15	Shane	2	1	1
16	Karen	1	1	1
17	Reg	1	1	1
18	Dennis	1	1	1
19	Derek	2	2	2
20	Adele	1	2	2

Key: (1) silent - except to ask for paint
(2) intermittent talking
(3) constant talking -(remarks confined to work being done).
(4) constant talking - (about the painting plus extraneous subject matter).

	Task One	Task Two	Task Three	Overall
(1)	12	9	8	29
(2)	4	9	10	23
(3)	1	0	1	2
(4)	3	2	1	6

BODILY MOVEMENT

	Name	Task One	Task Two	Task Three
1	Paul	1	2	1
2	Joan	2	2	1
3	Ray	3	3	1
4	Bob	1	3	1
5	June	3	2	1
6	John	3	3	1
7	Tricia	2	1	1
8	Donald	2	3	1
9	Aline	2	2	1
10	Linda	2	1	1
11	Ken	3	2	1
12	Bill	1	2	1
13	Ronnie	1	1	1
14	Mark	3	2	1
15	Shane	1	1	1
16	Karen	1	1	1
17	Reg	2	2	1
18	Dennis	2	2	1
19	Derek	2	1	1
20	Adele	1	2	1

Key: (1) none
(2) some
(3) a lot

APPENDIX E

30 SLIDES AND INDEX OF 30 SLIDES

INDEX OF 30 FINGERPAINTINGS FROM THE STUDY

1....Task One: all 4 colors used and kept separate, unsolicited graphic in the form of the sun, area not completely filled in.

2....Task One: 3 colors used and kept separate, area filled in completely.

3....Task One: colors kept separate, 4 colors, area completely covered.

4....Task One: 4 colors kept separate, area not filled in, unsolicited graphic in form of a circle with enclosed linear marks.

5....Task One: colors mixed (mud), applied one on top of another by circular smearing with one hand, area not completely covered.

6.....Task One: pale blue, 1 spoonful, area not completely covered, handprints.

7.....Task Two: colors mixed (mud), area completely filled in, many spoonfuls of paint, purposeful scribble marks.

8.....Task Two: red, 1 spoonful, area not filled in completely, experimentation confined to the small patch of paint.

9....Task Two: colors mixed, spaces left around the edge of paper, smearing.

10...Task Two: colors muddy, very thick paint, area all filled in, scribbling in evidence.

11...Task Two: mixed colors (mud), thick paint, area filled, all marks obliterated.

12...Task Two: blue area completely filled in, vertical scratch marks.

13...Task Two: pale blue, thin paint, area not all filled in, both circular and straight scratch marks.

14...Task Two: mud color, outer edges not covered, criss-cross scratch marks.

15...Task Two: color muddy, outer edges not covered, circular scratch marks, middle filled in with vertical scratch marks.

16...Task Two: blue, area not half covered, some smearing and scratching and scribbling in evidence.

17...Task Two: blue, edges of page not covered, circular smearing.

18...Task Two: red, showing right-left duplication, scratching.

19...Task Two: mud, thick paint, area completely covered, right-left duplication, unsolicited title: " two whales jumping up from the sea".

20...Task Two: blue, area completely covered, fingertip smearing and scribbling.

21...Task Two: 2 colors, red and blue mixed, area completely covered, smearing and scribbling.

22...Task Two: colors greenish-mixed, area well covered, smearing and scribbling.

23...Task Two: green and red mixed, area almost all covered, unsolicited graphic of a house with windows and roof.

24...Task Two: from the Pilot Study, yellow, area completely covered, unsolicited graphic of 3 little girls drawn into the paint with one finger.

25...Task Three: green, area not completely covered, a "failure" attempt, child scribbled over his attempt.

26...Task Three: blue on a white background, fingers used as a brush to spread the paint, figure with no details.

27...Task Three: green with a while background, fingers used as brush, head with some details, arms and legs.

28...Task Three: blue, figure on white background, plus an extra area of blue, head with legs.

29...Task Three: successful solution, small area smeared with green paint, simple figure incised into it with one finger, no details.

30...Task Three: successful solution, green area prepared by smearing, drawing detailed(hair,hat,buttons,shoes) incised into this area with one finger, hat and shoes are colored with red paint.

30 COLOUR SLIDES (35 mm),

TO BE USED WITH THIS THESIS,

ARE AVAILABLE FOR CONSULTATION AT:-

The University of Alberta
Faculty of Graduate Studies and Research
2 - 8 University Hall
Edmonton, Alberta, Canada
T6G 2J9